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PREVENTION AND TREATMENT OF EYE AFFECTIONS FROM VENEREAL DISEASE.

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By HERMAN KNAPP, M.D., New York.

A.—GONORRHOIC EYE-DISEASE.

Ladies and Gentlemen:

As soon as the new-born child has filled its lungs with a cry, announcing its individuality as an independent being, its eyes, in a certain number of cases, are threatened with blindness. After its first bath the eyes look all right, but soon the eyelids swell, become shining red, and a white slimy liquid oozes through the fissure of the lids. On the first day little or no discharge is perceptible, and the eyes are bright, the cornea, iris, and pupil intact, but from day to day the disease grows worse. The swollen scarlet lids are smeared with white paste and liquid or creamy pus. When cleaned and opened they discharge a small stream of pap-like secretion. Now the cornea (the hard and transparent coat) is dull, and the iris and pupil are clouded. The conjunctiva (the soft mucous coat lining the inner surface of the lids and the outer of the eyeball) is thickened, and covered with creamy pus. In this stage the eyes can still be saved.

The next stage shows ulcers on the cornea which are apt to perforate it, and then the poisonous discharge may creep into the interior of the eye and damage the delicate structures to such a degree that sight is forever more or less

destroyed, and the eyes are so disfigured that the parents ask to have them removed and artificial ones inserted. In the statistics of blindness, this dreaded disease—the infective purulent conjunctivitis—was formerly credited with the highest percentage, but a savior came in the person of *Dr. Credé*, who instilled preventive drops into the eyes of all babies in the Maternity Clinic of the University in Berlin as soon as they were born. He first has *the eyes* cleansed, even before the navel-string is cut, then he lets fall one or two drops of a 2 per cent. nitrate of silver solution on both corneæ of each baby in such a way that the whole conjunctival sac was disinfected; thus the destructive disease did not break out.

Dr. Credé was my teacher in 1853 and 1854; he was no ioculist, but an obstetrician, a young lecturer at the University and an assistant to the Maternity Clinic in Berlin, but t was later that he introduced his method to prevent this dread eye-disease of the new-born. He was born in Berlin, 1819, but his whole personality was French. He was small, with black hair and eyes, polite, agreeable, animated, and always composed and kind. His ancestors were probably among the Huguenot-Protestants who had been exiled from France, and whom King Frederick II. of Prussia welcomed with the motto: "En mon royaume chacun peut être sauvé à sa façon" (In my kingdom every man can be saved according to his fashion).

Dr. Credé left Berlin, following a call to the professorship of obstetrics at the University of Leipsic. He found in the Leipsic Maternity, on an average, 10.8 per cent. of blind children; after the introduction of his prophylactic measure he had 0.1–0.2 per cent. (Prof. E. Fuchs of Vienna).

In the year 1876 there were in twenty-two German blind asylums on an avera ge30 per cent. blind from blennorrhœa; in the year 1896 in forty-five asylums only 10 per cent. (Hermann Cohn). The Credé prophylaxis prevents the disease immediately after birth. In the years from 1854 to 1866 no less than 1413 children were infected in the Vienna Foundling-House by blennorrhœa (E. Fuchs).

In the maternities of our country the Credé method was

introduced as a preventive soon as it was known, with the same results: in the great majority of cases no infected babies! This is owing to the Credé prophylaxis. I should also like to state that new-born children, with puriform conjunctivitis, are not all infected by gonorrhœa, but many have a catarrhal eye-disease, caused by leucorrhœa, from which so many women suffer. Their children have only a mild eye-catarrh, from which they recover quickly and without consequences. The *microscope* decides whether it is the bad or the mild affection, by the presence of the gonococcus or not. Dr. Neisser, now professor at the University of Breslau, Prussia, is the discoverer of the gonococcus and several other microbes.

Oculists meet with a good many children afflicted with infective conjunctivitis, but few of these come from the maternity-hospitals. Here there is room for a law: "to compel midwives and obstetricians to disinfect all babies' eyes as soon as they are born."

The Credé method, good as it is, has been perfected. The nitrate of silver which sometimes irritates the eyes of a baby is superseded by a group of new remedies, which are fully as active, and besides entirely painless and innocuous: *the organic silver-salts.* Instead of the nitric acid, these organic silver-salts are proteids of silver; among the most available of them are *protargol* and *argyrol.* I am conversant with the use of both.

As to the silver treatment, I think that nitrate of silver in a 1 per cent. solution or more, during the *acute stage* of infective purulent conjunctivitis, is wrong in babies and adults. Acute inflammation of the conjunctiva, in my opinion, requires antiphlogistic treatment: linen compresses, made cold on ice, should be used day and night until the height of the inflammation is over. The secretion must be dipped up with absorbent cotton or gauze, both sterilized. The *prophylaxis*, with 1 or 1½ per cent. silver, is excellent, but when several days are over I do not think that this is still the best treatment. If a baby has nitrate of silver instilled immediately after birth into the conjunctival sac, the germs, which are still on the surface, can be destroyed

by means of this remedy, but when they have entered through the thin epithelial cover the nitrate of silver irritates and does no good. The germs are then in the deeper, succulent layer, where they find the best soil to proliferate. The nitrate coagulates the albumin, which prevents its further access into the subepithelial layer, which is composed of fine capillaries and small round cells like the rete Malpighii in the skin. Nitrate of silver is, however, very effective in the later stage, when the fornix is full of pus-cells and the mucous membrane swollen, ragged, and granular, just as in trachoma.

At that day the nitrate-of-silver treatment should also be abandoned in favor of the organic silver-salts; for instance, protargol and argyrol in 5 to 25 per cent.; protargol is a little stronger and also a little painful. *These preparations do not coagulate albumin, but penetrate into the depth where they meet the gonococci.* These remedies are excellent for this destructive disease.

There are two kinds of **metastatic** *gonorrhoic eye-disease.* The one is as an acute *iritis*, with a faint exudation in the anterior chamber, occurring mostly in connection with disease of the knee-joint or other joints. It is moderate in its symptoms, and lasts from four to six weeks. The treatment is that of the so-called rheumatic iritis: atropine, leeches to the temple, bed-rest, and evacuation of the bowels. I have rarely seen this variety, but the cases were well-characterized.

The other variety is as infrequent. I see about three or four cases a year. I described it more than thirty years ago under the name of **spongy iritis**; about the same time it was described under the name of **gelatinous iritis.** It is an acute process; the anterior chamber is filled with a kind of gray fluffy exudation; the sight is very poor, but the disease, as far as I have seen it, was entirely recovered from with perfect restoration of good sight. The treatment is that of an acute iritis. The exudation is peculiar; it fills the anterior chamber completely. The diagnosis, when we have seen one case, is easy. In four to six days the exudation commonly begins to absorb on the upper part of the

chamber. The exudation shrinks, which makes it more compact (gelatinous), and on the first glance looks somewhat like a cataract dislocated in the anterior chamber. The diagnosis is easy; the condition, peculiar and deceptive at first, but in two or three days it will be evident by the absorption at the upper edge. The treatment is like that of an ordinary iritis, with alteratives additionally.

This kind of iritis occurs also in *syphilis*, and may come many years later than the primary disease, often to men apparently in good health. In this variety, not only is the anterior chamber affected, but the other chambers participate in the inflammation; the vitreous is quite dull, so that no fundus-picture can be seen. The patients, and frequently also their medical advisers, receive the impression that it is a very serious condition. This is not the case. I have seen about half a dozen cases, with invasion of all the cavities; ciliary congestion marked; no fundus reflex; tension normal; no particular pain. The cases I have seen, recovered, but it required at least six weeks in bed at the hospital under mercurial treatment.

There is also a *metastatic gonorrhœal* **cojunctivitis.** Of this kind I have seen only two or three cases; the intensity, while considerable, was not the same in degree as in the infective variety. There were gonococci in the conjunctiva, none in the urethra, and the primary affection had long disappeared. It is difficult to ascertain its real nature: there may have been a chronic gonorrhoic affection, with few cocci for a time, so that we thought the patient was cured; he may have had a small colony of slumbering cocci, which, by an unknown cause, came to wake again. I draw attention to such behavior by the so-called slumbering cells, that "sleep" for a time.

B.—THIS LEADS ME TO THE SYPHILITIC DISEASES.

I. *The primary hard sore* (chancre) has been found on the edges of the eyelids, for which the lips and finger-nails are responsible. The swelling and hardness are the first suspicious symptoms; after six weeks we notice the roseola and other characteristic symptoms. The affection is analo-

gous to chancre of the lips, of which I have seen a marked example in a house-keeper of a widower.

II. *Syphilitic Iritis.* This is not rare, and is easy to recognize by the little gummous nodules around the pupil, besides the ordinary other symptoms. Iritis is painful, especially at night. The prognosis is favorable. The treatment is bed-rest, atropine instillation, free catharsis, and, chiefly, mercurial inunction twice daily, until salivation. It may be so acute and vehement that we must administer mercurial treatment so vigorously that salivation is produced within twenty-four hours, otherwise the eyeball may be destroyed (v. Gräfe).

III. *Syphilitic Inflammation of the Ciliary Body.* This form is tedious and severe, but not incurable. It is often connected with syphilitic iritis. Under full mercurial treatment it may shrink and disappear. Sometimes it pierces the sclerotic near the cornea, in the upper ciliary area. The mercurial treatment has to be continued until the perforation is closed. I treated a young woman for this disease and she recovered very well, with preservation of good sight. She has had no relapse. A few cases of this kind are on record, (Ewetzky, Stieren; myself).

IV. *Syphilitic Choroiditis.* This form is mostly recognized by white, small, peripheric, round, disseminate patches, *i. e.*, defects in the periphery of the choroid. They are not characteristic; the diagnosis must be made by the course and the symptoms. Treatment: specifics—Hg and KI.

V. *Hereditary Syphilitic Keratitis, Interstitial or Parenchymatous.* This is a singular disease. The late Sir William Wilde, of Dublin, defined it as strumous or scrofulous; but it was reserved to Jonathan Hutchinson, of London, to discover the true cause. The cornea is dull, the upper incisor teeth are stunted, and concave on the lower edge. It occurs more frequently in girls than boys. The cornea is grayish, in small patches or diffuse, caused by an infiltration of the parenchyma in the deeper strata. It clears up slowly and incompletely. These diseases, iritis, cyclitis, and choroiditis, may occur single or combined; the keratitis adds itself to them, especially if they are hereditary. Sometimes one

child has one, and another child has the other of the group; also one child may have some of the symptoms and another the more characteristic ones.

Example.—Once a lady came to me with a well-marked parenchymatous inflammation of the cornea; she had no other symptoms of hereditary syphilis. She was about twenty years old and looked the picture of health. When she came to visit me again she was accompanied by her somewhat older sister. The latter was haggard, had a saddle nose, and the Hutchinson teeth. *Her eyes were healthy.*

VI. *Syphilitic Retinitis* is induced by choroiditis, but it is also primary, as diffuse or patchy opacities; also white long-stretched exudations, one or several disk-diameters; it is frequently combined with inflammation of the optic disk. Hg and KI have good effect on it.

VII. This combination, the *Syphilitic Neuro-Retinitis*, is the rule; specific treatment is efficient, yet it will take months to restore a healthy ophthalmoscopic picture. The symptoms are swelling of the disk and the retina.

VIII. The *Muscles of the Eye* are frequently attacked by the syphilitic poison. The fundamental symptom is double vision, caused by a paralysis of one or several muscles. The paralysis is not a disease of the muscle, but of the nerve, which excites the muscle. The cause of these paralyzed nerves lies mostly in the brain; rarely in the orbit. I cannot go deeply into this chapter, but the diagnosis, in general, is not difficult, and the treatment is internal. Hg and KI, if the disease is not too old, are efficient; if it is of long standing, no treatment is likely to yield great results. Operations on the paralyzed muscles are not very satisfactory.

IX. *Tabes or Locomotor Ataxia.* Among the many diseases of syphilitic origin, let me finish this address with a reference to the one which causes the greatest misery.

"When you see an elderly man—women are almost exempt—walking with a cane, and with uncertain step, or led by a guide, it is likely he suffers from locomotor ataxia." This disease, in my experience, is syphilitic in the greater

number. The eye-surgeon sees these sufferers more than the other physicians. Tabes mostly leads to blindness; the optic nerves dwindle away as the locomotor-nerves—the spinal. It is very chronic, and not a disease of the first half of life. The great majority of cases, I may say, are due to syphilis. About thirty-five years ago I examined every sufferer from tabes and noted the results. The percentage was over seventy-five. The first locomotor symptoms occur many years after the infection. Very many have forgotten it, and those cases where there was no great trouble were those that caused insidiously the late manifestations. I beg your pardon, if you will allow me to quote a pertinent example.

A wealthy and well-bred gentleman, an amateur painter, of about sixty years, came to me with manifest locomotor ataxia, complaining of loss of sight in both eyes. I examined him with the eye-mirror; the nerves were white (wasted). As he walked a little shaky, I examined his pupils. When I threw light on them: they remained immovable. When I told him to look at the opposite wall, they dilated. I told him I was sorry he had locomotor ataxia and that his optic nerves were weak. I asked him if he had never had a disease from a woman. "Oh, no!" he said. Then I asked him to think of former years.—"None, sir!" I told him to think again, a long time ago. Then his eyes looked treacherous, and he said: "Oh, yes! in Rome, more than thirty years ago, there was a model."—"Did you suffer much from the disease?"—"Oh, no! The doctor said it was nothing bad; only a chancroid." I told him "that was the origin of his disease; that specific remedies were now of no use, but he could keep himself as well as he was then; he might even grow stronger and see better if he were careful in his diet and have regular exercise. Make it a point to keep all the rules of health."

Syphilis is the chief cause of weakness of sight and atrophy of the optic nerves.

THE DEPENDENCE OF ACCOMMODATION AND MOTILITY ON THE REFRACTION OF THE EYE.[1]

By HERMAN KNAPP, M.D., New York.

THE live journal, *The Ophthalmoscope*, takes me to task by a short note, vol. iv., No. 2, p. 67.

C. Marcus quotes: "*Knapp*, in an article of the above title, published in the *Recueil des Travaux du X^e^ Congrès International d'Ophtalmologie*, Lucerne, September, 1904," and says as follows:

> Knapp is in the habit of testing all hyperopic patients for esophoria by means of Stevens's phorometer. He thinks it possible to determine thereby not only the condition of the eye-muscles but also the degree of latent hypermetropia. He says that convex glasses neutralize the lateral displacement in the case of homonymous double-images, and so indicate the degree of latent hypermetropic refraction. This view can, however, not be accepted, for whatever effect convex glasses may have on the relative position of the images can only be due to their prismatic action, and not to any influence on the patient's accommodation. C. Marcus.

I see that the inductive philosophy (*i. e.*, to solve problems by pure thinking) is not dead yet, but has travelled from Germany to England, after having been killed in medical science by the physical school of Joh. Müller, Dubois-Reymond, Brücke, Ludwig, and particularly Helmholtz. Mr. Marcus might have easily found the truth by examining a few hyperopes in the way indicated. My contention

[1] Read before the British Medical Association at Toronto, Canada.

is as follows: We know by experience that the *emmetrope* sees perfectly at distance without an effort; his refraction gives him sharpness of retinal pictures and muscular balance at distance *without an effort.* Otherwise the ametrope!

The *hyperope* has to strain his ciliary muscles, even at distance, to see clearly. Without convex glasses he tires, which causes asthenopia and headache. The *myope* does not see clearly at distance without suitable concave glasses, which give him sharpness of sight and soon also muscular balance, just as the emmetrope and the hyperope with the neutralizing convex glasses. Near-sighted eyes have, as a rule, exophoria. A hyperope with + 2 D has to accommodate, *i. e.*, contract his ciliary muscle to the effect of + 2 D in order to look without a strain in vision at distance. These *two degrees of contraction by the ciliary muscle have been incited by a nerve-impulse of the same strength.* Now, as a nerve-impulse is sent into the muscles of accommodation, it will be sent also into the muscles of convergence, for both functions, accommodation and convergence, are effected by voluntary muscles which, as equal partners, receive the same impulses. When we disrupt the convergence with a vertical prism, the hyperopia remains, and the convergence can be measured by Maddox glass-rods or Stevens's phorometer; as a result we find that this patient has also about two degrees of esophoria. When now, as a counter-test, we hold a + 2 D spectacle-glass before the patient's eyes, the hyperope of + 2 D sees clearly without an accommodative effort, and the esophoria is wanting, but it reappears when the plus glass is removed. This seems that the same nerve-impulse was sent into the internal recti as well as into the ciliary muscles.

In *myopic* eyes the conditions are the same in character, but with negative glasses. Let a myope of — 2 D look at the distance, then through the phorometer, he will show two degrees of exophoria, or near that. In my experience the myopes do not give so uniform results as the hyperopes. I mean the exophoria is not so even with the myopia as the esophoria with the hyperopia. With the hyperopes it is almost a physico-mathematical problem; and this class

benefits much more than the myopes. The combined testing of motility and refraction is a comfort to the patient and time-saving to the oculist, particularly if he has to deal with latent hyperopia.

This chapter has still some problems to solve. One is that the patient has what we may call an "educated" ametropia, which is identical with Donders's manifest H and M. With + or — glasses we first try to get the best correction, then we test the patient with the phorometer, and obtain a near approach to the absolute H or M. For treatment we prescribe the glasses which the patient accepts, namely, the manifest ametropia. This educated condition is sometimes surprising. For example, a man of about thirty had two degrees of hyperopia; with the phorometer I got four degrees esophoria. He was quite satisfied with his + 2 D for all purposes. Nevertheless, I told him to come back in six weeks for a stronger and better glass, which he at first did not tolerate. In myopes the same.

With regard to treatment, I want to add a few observations which I have made.

Not quite rarely I find patients, chiefly delicate young ladies, whose eye-ground shows nothing abnormal, and they wear negative glasses. As they have asthenopia and headache, I try them with + glasses, which they reject. Then I examine them with the phorometer; they do not show esophoria, but a less degree of M. Now I give them + 0.25, first for reading, then for distance, and I give them + 0.5 to read with, and in four or six weeks to use + 0.5 for distance and + 0.75 near, thus to gradually come to the total hyperopia. In those cases their accustomed distance-glasses are much too weak. Every now and then we have to find out the real far-glass with atropine in full strength, f. i. in strabismus. If the manifest ametropia, when corrected, does not relieve the asthenopia, I try the ametropia under atropin.

Furthermore, I like to say that + *glasses may do harm if they are too strong.* Not very long ago an oculist of St. Louis wrote me: "Whether I remembered a certain squint-boy whom I had treated; he had been straight for some

years, but now he had a steady divergence. He was wearing + glasses, but he had not been operated on by me or by anybody." Strange, the well-known duplicateness of rare cases! Since that time I have seen three hyperopes that wore convex glasses and had divergent squint. The cure was simple. I found that the glasses were too strong. Whether they were too strong when I prescribed them, or whether the hyperopia had diminished, is a question. There is a large group that can be made comfortable with glasses. I make tenotomies not so frequently as I used to do, but giving them all up would be going too far. Insufficiency, *i. e.*, heterophoria, requires it exceptionally, and strabismus also—that is, when the long contraction has made the muscle rigid; a tenotomy to turn the eye so much that the glasses are efficient enough to straighten it. A tenotomy of the rigid muscle, combined with advancement of the antagonist, gives, as a rule, the best results. Near-sighted people require greater examination and care, for their error of refraction is complicated with organic disease—the crescentic choroidal atrophy at the temporal margin of the papilla. The *treatment rests, besides the organic changes, on the acuteness of sight and the motor anomaly.* Mostly there is more or less exophoria. The principle of treatment is to re-establish orthophoria by weak, gradually increasing glasses. It is important to avoid all overwork, enforce proper arrangements for reading and writing, sufficient rest, and observation of the rules of general hygiene in all cases. Successive increase of the strength by weakest addition, — 0.25 after six weeks or two months, and then go on with the additions, — 0.25 or stronger, if tolerated. I have seen good results in myopia and exophoria by this method of treatment.

I think that I have brought sufficient proof that the combined action of muscles of accommodation and the internal recti are excited by one nerve-impulse. *Jul. v. Michel*, professor of ophthalmology in the *University of Berlin*, has expressed the same opinion. Another proof of this connection of two muscles acting for one purpose is the contraction of the pupils and the convergence of the eyes;

which adorns the name of *Argyll Robertson, of Edinburgh.* Another conclusive demonstration of our connection with accommodation and convergence has lately been communicated (July, 1906) to the Ophthalmological Section of the American Medical Association at Boston by Dr. *S. H. Savage, of Nashville, Tenn.*, viz.: If you dilate both pupils with atropine, the pupils are dilated and the accommodation is paralyzed, but not the convergence.

All these experiments have a great importance in science and practice: scientifically that a function for one purpose may be executed by different muscles, which are under nerve-impulses to the same degree under the exigency of the function. Our example has the remarkable condition that we can by measuring the strength of one determine also the other. Practically it has showed that the heterophorias are not insufficiencies, and that the treatment lies in the spectacle-case and rarely only in the operative box.

SUDDEN BLINDNESS FOLLOWING SUPPURATIVE CONDITIONS ABOUT THE EYEBALL.

By ARNOLD KNAPP, M.D.

SIGHT is occasionally suddenly lost when there is an acute suppurative process in the neighborhood of the orbit. The orbital symptoms are those of a cellulitis of a varying intensity. The ophthalmoscopic picture is that of an embolism of the central retinal artery with consecutive optic atrophy and obliteration of the arteries.

The following cases are illustrative:

CASE 1. *Blindness following an operation for empyema of the frontal sinus.*—The patient, fifty years old, had had five attacks of manifest empyema of the right frontal sinus, following the grippe, in five months. When seen, the upper eyelid was swollen and œdematous, the lower part of the frontal sinus was enlarged, and the bony walls were very tender. Eye normal. Nose: anterior extremity right middle turbinal hypertrophied and bathed in pus. The anterior extremity of the middle turbinal was removed, and two days later the sinus was operated on according to Kuhnt's method; the entire anterior and inferior wall removed. A perforation existed at inner third of junction of anterior and inferior walls. The ethmoid cells seemed normal, and only the infundibular cells were eradicated in making a broad communication with the nose. The periosteum of the orbit lining the inferior wall was found very much thickened and inflamed. The anterior wall was restored by uniting the periosteo-cutaneous flaps; the lower was left open to admit the packing. On the following day she had some pain. Temperature, 100° F. On second day dressing was changed; some œdema of upper lid and slight exophthalmos. Wound clean; on raising lid, patient exclaimed that she could not see. The pupil was fixed and semi-

dilated; the ophthalmoscope revealed a condition similar to an embolic process; the retina was hazy and œdematous; arteries very small, and at one point the inferior temporal artery appeared obliterated; no swelling of the disk. Three small hemorrhages were about the macula. The œdema of the retina gradually disappeared, the hemorrhages were absorbed, the disk went on to simple atrophy, and the patient remained blind. The frontal sinus wound did perfectly well and healed promptly with no deformity.

Case 2. *Blindness following periostitis of the superior maxilla of dental origin.*—On November 26th, L. G., sixteen years old, had the right canine and second incisor teeth filled at line of gum; on the third day after had some toothache; the right half of the face began to swell and the right eye was closed. Five days later the gum in front of the canine tooth opened and discharged pus. The swelling of the face diminished and the eye opened after having been closed for a week. The patient immediately noticed that she could not see with that eye. She came to the dispensary on December 17th, three weeks after the tooth had been filled. The pupil was dilated and immobile. The optic nerve was white; the vessels were normal; slight atrophy of the choroid about the disk. The anterior surface of the superior maxilla was swollen and tender. In the floor of the orbit there was a firm, resisting, flat swelling. A fistula discharging pus was situated in the canine fossa; a probe could be passed upward and forward under the periosteum and rough bone detected. The mucous lining of the outer wall of the inferior nasal meatus was swollen; aspiratory puncture of the antrum of Highmore was negative. In the subsequent course the eye has remained blind; the disk is white; some of the arteries, especially near the disk, can hardly be recognized. The swelling in the floor of the orbit remains; the discharge from the fistula has almost ceased.

Case 3. *Blindness from penetrating wound of orbit with cellulitis.*—E. B. January 12, 1904. Four weeks ago lead pencil injured right orbit, entering outer half of lower lid. Orbital abscess developed. This was opened two weeks ago and pus evacuated. Now marked exophthalmos up and out. Lids hard and swollen. Chemosis. Disk white. Arteries very small, V = o.

The ophthalmoscopic picture in these cases differs from that of the common occlusion of the artery from thrombosis or embolism, in that the whitish haze of the retina and disk is more marked, and that the subsequent transformation of the arteries into white lines is more constant.

What pathological process in the orbit can produce this picture?

A direct involvement of the optic nerve should give the evidence of an optic neuritis with hemorrhages and exudates, as we see in the usual orbital complications after suppuration of the accessory nasal sinuses.

It might be supposed that the inflammation of the periosteum extends to the apex of the orbit, and there compresses the optic nerve, but, though blindness would result, there would be no ophthalmoscopic evidences at so early a stage.

An involvement of the orbital veins, thrombo-phlebitis, with extension to eye, gives an entirely different ophthalmoscopic picture.

The ophthalmoscopic picture seems to prove an involvement of the arteries; this could be explained by an inflammation of the central retinal artery, an acute arteritis.[1] Without an anatomic examination this question cannot be decided. The process in the artery is sufficient to not only shut off the blood current, but subsequently leads to a proliferation of the empty arteries, as is shown by the white glistening lines, which are not present or not so marked in the picture of the non-infectious embolism of thrombosis of the retinal artery.

Michel,[2] states that acute periarteritis and periphlebitis have been observed in facial erysipelas with preceding involvement of the orbit (exophthalmos). Ophthalmoscopically there is at first a diffuse white cloudiness and swelling of the disk and retina, the arteries subsequently become converted into white glistening lines, the disk turns white, and the eye remains blind. This coincides with the picture observed in the above cases.

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[1] Ziegler, *Pathologische Anatomie*, vol. i pp. 60–63, 1903.

[2] *Klinischer Leitfaden der Augenheilkunde.* 1903.

DOUBLE CONGENITAL ANIRIDIA WITH GLAUCOMA AND CATARACT. EXTRACTION WITH RESULTING GOOD VISION. OBSERVATIONS ON THE ACTION OF ESERIN WHERE THE IRIS IS ABSENT.

By Dr. DAVID N. DENNIS, of Erie, Pa.

CONGENITAL aniridia is a comparatively rare condition, especially when associated with cataract. The case reported below is one of total absence of the iris and ciliary bodies. It is stated by some authorities that the usual glaucoma found in congenital aniridia is from the pushing forward of the rudimentary iris into the ciliary angle, thus obstructing drainage. I think that this can be safely excluded in this case, as the most searching examination failed to show a vestige of the iris or ciliary process.

George B., aged twenty-three, a farmer by occupation, first consulted me on November 9, 1901, and gave the following history: His general health had always been good. He always had difficulty in seeing—in fact, he never remembers seeing with his right eye, but always with the left—at least, enough to get the rudiments of an English education. The family history gives nothing in the way of eye trouble other than the total blindness of the father. The grandparents, brothers, and sisters had good vision. I had an opportunity of examining the father, and found phthisis bulbi present in both eyes. He gave a history of perfect vision as a young man. He had no difficulty in reading or seeing to do his work. He seemed to be somewhat doubtful as to the cause of his loss of sight. From the appearance it would seem to be a case of septic choroiditis, possibly from an injury, although this could not be elicited. The son's

vision at the time of first examination was equal to the counting of fingers at six inches in left eye ; a mere light perception in the right eye, with a pronounced nystagmus of both eyes. Tension of right eye + 2, left eye + 1. Cornea clear in left eye, slightly cloudy in right, with a total absence of iris and ciliary bodies in both eyes. Lens of right eye totally opaque. In the area of the suspensory ligaments a red reflex could be obtained by reflected light. In the left eye a partially mature cataract was present. No view could be obtained of the deep eye. Light projection was apparently perfect in the left eye, but very questionable in the right. Patient sent to the hospital for operation. On July 10, 1902, the cataract was extracted from the left eye with no loss of vitreous. Smooth recovery. There was present a moderately thick secondary membrane. For two weeks following operation the tension of the eye was normal. After this a noticeable plus tension was again present. The use of eserin twice a day brought the tension down to normal. On August 2, 1902, the secondary membrane was divided. The recovery from this was smooth, with no unusual increase of tension, although when the eserin was discontinued for any length of time a noticeable plus tension commenced. With a spherical + 14, vision = 6/60. Eye-ground perfectly normal. The nystagmus, which was not modified by the operation, made it of course impossible to get a higher percentage of vision. As far as it was possible to determine with the constant oscillation of the eyeball, the field of vision was normal. Patient was seen again on September 22, 1902, eserin having been used in the meantime twice a day. The tension at that time was found to be normal, and the eye perfectly quiet. Vision remained 6/60. Patient was able to take care of himself, do his work, and read No. 6 Snellen with a spherical + 16. The eserin was discontinued. Patient was again seen May 13, 1904. Tension normal. Field of vision remaining about the same as when first taken. He was then instructed to use the eserin every second or third day. Patient was again seen on May 29, 1906. Vision at this time with glasses 6/60. Nystagmus still present, although less noticeable than at first. The amount of vision has noticeably increased in modified light, although he has some difficulty in seeing in the strong sunlight. This is natural, as the absence of the iris deprives him of the power of modifying the quantity of light. The opening made through the capsule remains free. Tension of

left eye normal; right eye + 1, with some haziness of the cornea. Patient is able to read ordinary print in proper light, although close work has been restricted, as a precautionary measure. He has no trouble in attending to his work, and suffers no pain.

The length of time that has elapsed since the tension was last noticed would lead one to suppose that the danger of glaucoma had passed. One of the most interesting features of this case is the action of the eserin in reducing the tension. It is usually thought that the lowering of the eye tension by the use of eserin is produced by the myosis. In this case, where the iris and ciliary bodies are absent, it shows that the lowering of the tension is produced by some other cause than its action on the iris. This fact I was able to prove on various occasions, when by stopping the eserin for a day or two there would be an invariable rise in tension. This fact, I find, is mentioned by Noé Scalinci in *Annali di Ottalmologia*, Fasc. 7, 8, 9, 1904, and reported in *Annals of Ophthalmology*. He reports a case of congenital bilateral aniridia, where there was increased tension that was perfectly controlled by instillations of eserin. The action of eserin in lowering ocular tension must be from its well-known power to contract the blood-vessels, as well as its action in contracting the pupil.

It is thought by many that aniridia is hereditary. Dr. Mossenier reports several cases in one family. There is no evidence of this being so in the case just reported. The general appearance of the patient is one of premature senility. He has the appearance of a man of forty rather than twenty-three. His mentality is rather dull, although far from that of an imbecile, as the case reported by Dr. Mossenier. The dulness may have been from the restricted life he was compelled to lead rather than from a natural lack of development. The production of glaucoma by some authorities is supposed to be from a blocking of the ciliary angle. Treacher Collins, in his article on glaucoma, states that there is predisposition to glaucoma in many cases of aniridia. Strands of tissue are found stretching from the rudimentary iris to the ligamentum pectinatum. If this be

so in the above reported case, it is rather hard to give an explanation of the total subsidence of the tension after using the eserin. The circulation of the eye must have been influenced in some way so that the drainage was thoroughly balanced. That this was regulated I think can be fully proved from the length of time which had elapsed from the date of operation to that of last examination.

A RARE PATH OF INFECTION OF AN ORBITAL ABSCESS.

By Dr. C. BARCK, St. Louis.

(*With two figures on Text-Plate XV.*)

On the 3d of May, 1906, W. G., a boy eight years of age, was hit on his right temple by a stone, thrown by another boy. Two days later high fever set in; on the third day the upper lid commenced to swell, and on the next he was unable to open the eye. Then the family physician, Dr. K., was called in. He found a temperature of 104° F. and the patient somewhat comatose and delirious; these symptoms increased during the following days and he asked for a consultation.

I saw the patient on the 8th. There was a small, irregular wound on the temple, about one inch above the outer end of the supraorbital margin; it was not much more than *2mm* long and looked as if made by a sharp-pointed instrument. It contained some discolored purulent secretion. The probe went down directly to the bone, some roughness being felt, giving the impression of a fracture. The upper lid of the eye was enormously swollen, red, and œdematous. The patient was unable to raise it. When opened artificially, exophthalmos of considerable degree was found, the eye protruding straightforward. Examination of the fundus was impossible, as the patient was in a half comatose condition. Temperature 104.5°. Complains of severe pain in eye and head.

The diagnosis which seemed the most probable was that of an orbital abscess, with the supposition that the infection had spread from the wound around the orbital margin and reached the orbital contents. But, on account of the benumbed sensorium and the delirious condition, the possibility of an infective thrombosis of the cavernous sinus and ophthalmic vein was also taken into consideration. The cavernous sinus may have been reached

through one of the diploic veins of the supposed fractured bone or by way of a meningitic process. In adherence to the former view, it was decided to explore the orbit.

Operation next day in hospital, in narcosis. I had decided not to make the usual incision, but to follow the supposed path of infection from the wound. Therefore a section was made from the wound vertically downward to the edge of the supra-orbital margin, to the bone. To our astonishment we found that the roughness felt with the probe was not due to a fracture of the bone, but simply the edge of a large emissarium. The surface of the bone in the entire length of the cut was perfectly normal. From the lower end of this section I then went into the orbit with a small bistoury in different directions as far as one inch and at least a dozen times, and afterwards with a probe, without evacuating pus. A drain was introduced. Patient passed a fairly good night; the temperature fell to 102°. The exophthalmos and the swelling of the upper lid had rather somewhat increased. But the following day the dressings were saturated with pus and the exophthalmos had considerably subsided, showing that the abscess had emptied. Cases of this kind, where the orbital abscess is not found at once, but opens some time later, are quite frequently reported in literature.

The facts, that we found an emissarium instead of a supposed fracture of the bone, and that the tissues of the assumed path of infection were found perfectly healthy, induced me to examine a number of skulls. There is normally an emissarium present at this place, sometimes quite large, as shown in Fig. 1. The location differs somewhat, being situated in some instances directly upon the linea semicircularis of the frontal bone, in others nasally to it. It lies between 15 and 25*mm.* above the outer edge of the supraorbital margin. This emissarium is not mentioned in the current text-books of anatomy. Gray, Morris, and Quain name in the anterior portion of the skull only two emissaria; the "frontal," at the supraorbital notch, and the aperture in the great wing of the sphenoidal bone, which Gray and Quain term the "anterior temporal," Morris the "fronto-sphenoidal." The unnamed one is just as large as the others, and certainly more important from a surgical standpoint, because it is much more exposed to injuries and consequent possible infection. From the aperture the canal leads downward into the diploë. In the elongation of this direction we find that the outer portion of

Illustrating Dr. Barck's article on "A Rare Path of Infection of an Orbital Abscess."

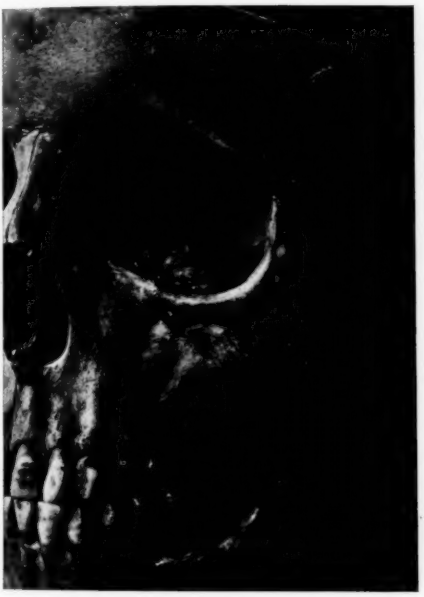

FIG. 1. Showing emissarium

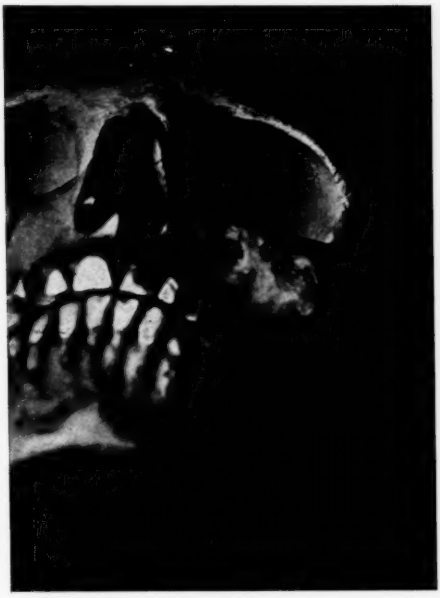

FIG. 2. Foramina in outer-upper wall of orbit.

the roof of the orbit, in the so-called lachrymal fossa, is perforated by a number (about a dozen) of small foramina, as seen in Fig. 2 (Pictures taken from the same side of one of my skulls.) It now became apparent that this must have been the path of infection from the emissarium into the diploë, thence through these foramina into the orbital tissue. The subsequent course confirmed this opinion. It was as follows:

The swelling of the lid and the exophthalmos receded rapidly under free drainage, and had disappeared entirely on the 17th. The drain was then left off and the orbital portion of the wound was closed on the 18th. The comatose condition had likewise disappeared. But the temperature did not return to the normal. It ranged between 102° and 103.3° and the patient was very weak and emaciated. The vertical portion of the wound upon the frontal bone was suppurating all the time, and I found the mentioned canal, leading downward from the emissarium, regularly filled with pus. I cleaned it well, partly with the syringe, partly with a fine wire dipped in an antiseptic solution. When the temperature did not decrease after the healing of the orbital abscess, I concluded that there must be an infective focus in the diploë left, and intended to chisel this part open, if the temperature should continue or other unpleasant symptoms should develop. But on the 20th the fever commenced to decline and the temperature returned to the normal on the 22d and remained so. The minute canal as well as the wound became covered with healthy granulations, and commenced to fill up. Patient was dismissed from the hospital on the 29th of May. The exophthalmos had disappeared; the upper lid could be raised to about half of the normal degree. The vision was fairly good on a superficial test; a more exact one and fundus examination were deferred. On account of very flabby granulations the wound closed slowly and was cicatrized fully on the 20th of July.

After leaving the hospital, patient was under the care of his family physician. On the 6th of June he was examined at the office and the fundus found normal. Vision = $\frac{4}{5}$; reads Sn. I. Position and movements of the eye in all directions normal. The next time he was seen was on the 10th of July. He had had high fever during the preceding week, and had been compelled to stay in bed for some days. There was severe headache; his neck had been stiff and contracted, so that the family

physician diagnosed a beginning cerebro-spinal meningitis. But these symptoms disappeared soon. When seen, there was convergent strabismus. The first impression naturally suggested, that the paralysis was of orbital origin, a sequel of the abscess and the operation, but a closer examination revealed that there existed a paresis of the external rectus of each eye of about the same degree. These could only be of intracranial origin, and the diagnosis of a slight meningitis as a late sequence of the infection was confirmed. Under the administration of iodide of potassium these pareses disappeared entirely and the patient recovered fully. When seen last, the movements of both eyes were normal; fundus of right eye normal; $V = \frac{4}{4}$; Sn. I.

Evidently the diploë in the frontal bone was the primarily infected focus, which led first to an infection of the orbital tissue and later on to a happily benign meningitis; whether the latter might have been prevented by the intended chiselling open of the focus, is an open question.

CLINICAL CONTRIBUTIONS TO THE STUDY OF ATROPHY OF THE IRIS.

By Dr. ADOLF FRANCK,

FORMER ASSISTANT AT THE MUNICH UNIVERSITY EYE-CLINIC (PROF. EVERSBUSCH).

Translated from the German Edition, Vol. XLVII., April, 1903, by Dr. Percy Fridenberg.

(*With six figures on Plates VI–VII.*)

IN the following cases, observed during my service under Prof. Eversbusch and reported at his kind suggestion, we have to deal with circumscribed loss of tissue in the iris, presenting itself in the form of more or less extensive defects or apertures, and due to circulatory disturbances. Such tissue changes, which are in the last analysis of a purely mechanical nature, must be regarded as due to abnormal conditions of tension and pressure in the coats of the iris, caused either by pathologic fixation and exudation following inflammatory processes, or by increased intraocular pressure of glaucoma.

Case 1.—Maria M., aged forty-six, came to the clinic on October 18, 1901, for treatment of an injury to the right eye, which had been struck, a few days previously, by the horn of a goat. As a child she had had repeated attacks of inflammation of the eyes, and had always seen badly. Present condition: V O D, fingers "point blank"; V O S, 5/25, without correction. There are numerous corneal opacities, both diffuse and punctate, in both eyes. In the right there is a fresh and slightly infiltrated ulceration on an old macula. After this had been healed the patient's eyes showed the following condition in March, 1902:

O D: The corneal maculæ are vascularized particularly at the upper and nasal part. A number of punctate opacities are seen in the lens. The pupil is round and reacts promptly; there are a number of posterior synechiæ. The details of the iris are very indistinct, and the iris itself riddled with small round or oval holes of about pin-head size, situated to the outer side of the minor circle, in the middle, and at the periphery. Through some of these defects a red fundus-reflex is obtained on ophthalmoscopic examination. The cornea of the left eye is more diffusely opaque, and is traversed by numerous fine vascular twigs, many of which are obliterated. The pupil is drawn out of place, almost triangular, does not react, and is attached at several points of the margin to the anterior lens-capsule. At the bottom of the rather deep anterior chamber a number of small black spots are seen. The details of the iris are indistinct and its tissue felty and matted, so that no ridges or differences of level are seen on the anterior surface. The pupillary portion of the iris is differentiated from the ciliary by a somewhat darker brown coloring. A few darker spots in the stroma are found when magnified to be nævi, or, in some instances, circumscribed defects in the stroma, through which the pigment-layer shows. Most of these spots are found in the ciliary portion of the iris.

Case 2.—L. Br., age fifty, formerly a house-keeper, suffered in 1896 with a severe iritis of both eyes, resulting in almost complete blindness of the left eye, in spite of early iridectomy, while the right retained somewhat better vision. In September, 1901, on admission there was only perception of light in the right eye, with doubtful projection in the left. Both eyes showed the residua of an irido-cyclitis, annular synechiæ, membranous exudation on the anterior surface of the lens, and atrophy of the iris. Both lenses were completely opaque. Nothing could be seen of the interior of the eye. Intraocular tension was reduced in the left eye, but increased in the right, requiring an iridectomy.

After an uneventful recovery from the operation, the patient was discharged, and in March, 1902, presented the following condition: Both eyes are free from irritation; the left deviates outward. O D: The cornea is clear except for a few punctate opacities on the posterior surface and in the parenchyma. In one or two places adhesions of the iris with the cornea in the form of iris-threads are seen. The anterior chamber is very

shallow, particularly at the middle. The iris as a whole is atrophic, green-gray, tense, consisting of tightly-stretched radial fibres, which at some points are unusually thin, allowing the pigment-layer to appear. Where this also is atrophic, particularly within the smaller circle of the iris, the yellowish white of the opaque lens can be seen through the defects in the tissue of the iris. These perforations are round or oval or long and polygonal. There is a coloboma of the iris upward. The pupillary margin is thin, jagged, and attached throughout its entire extent to the lens. The latter is entirely opaque, and cannot be transilluminated.

O S (see Fig. 1): The condition of cornea and iris is about the same as that of the right eye. Within the coloboma upward opaque white angular streaks and numerous fine deposits of pigment are seen on the surface of the completely opaque lens. The adherent pupillary margin is partially defective. The iris itself appears, on examination with the naked eye, to be studded with numerous gray and grayish-yellow dots, especially above and to the temporal side. Under the corneal microscope these dots are seen to be defects in the iris tissue, partly limited to the superficial layers, partly involving the entire thickness of the iris, so that the lens appears as a yellow background in the apertures. They are sharply defined, as if punched out, and show a red reflex when focal illumination is thrown on the sclera or the eye transilluminated from in front. In the illustration, which shows the conditions as seen in diffuse light, the defects are reproduced in uniform black. It is noticeable that they lie between the fibres of the iris and are arranged with the long diameter extending radially. The lens is opaque; the fundus cannot be seen.

Case 3 (see Fig. 2).—The patient, a boy of ten, had had a severe irido-cyclitis a few years before, which had led to the loss of the sight of one eye. The left eye, which is now free from all signs of irritation, and not phthisical, shows the following condition:

The cornea is clear except at the periphery, where there is a slight clouding. The anterior chamber is of about normal depth; the iris is brown, lack-lustre, and of irregular structure. At the temporal side of the ciliary border of the iris, almost hidden by the corneal margin, several very small holes are seen in the

anterior layer of the iris, through which the pigment-layer is visible, so that at these points dark square areas appear, which are not seen in the illustration on account of their peripheral location. At the border of this atrophic zone, corresponding about to the region between the periphery of the iris and the smaller circle, there is an attachment to the lens, so that the anterior chamber becomes deeper at this point.

Along the smaller circle, reaching somewhat higher up than the peripheral atrophy, there is a series of atrophic spots arranged parallel to the pupillary margin, the lower ones involving only the anterior layer, while farther up the atrophy has affected both coats of the iris, so that complete apertures are found in which brownish-black spots are seen, as well as opacities like crystals in the much shrunken lens. Of the two defects at this point the upper is oblong, and adherent throughout its entire margin with the lens; the lower, diamond-shaped, and separated from the former by a bridge of delicate iris-tissue. Neither aperture shows the slightest trace of motion at its margin in unison with the play of the pupil. The latter is rather contracted and entirely occluded by the opaque lens, on the surface of which there are membranous deposits and a small circle of dotted pigment. The pupillary margin, when reacting consensually, shows a fairly good and regular motility, which, however, is soon lost as we approach the defects described above. There is no retraction of the pupillary margin toward these apertures. There is another small patch of atrophy in the upper nasal quadrant of the iris, limited to a small area and to the anterior layer. The eye cannot be transilluminated at any point and is completely amaurotic.

In the cases described above we have to deal with an actual loss of tissue, so that at some points there are holes in the iris, through which the opaque lens can be seen, while at others the atrophy is limited for the time being to the anterior layer of the iris, so that the still intact pigment-layer appears.

In all the cases reported, the atrophy was the result of a severe irido-cyclitis, which led to broad and firm adhesions of the iris to the lens. After iritic processes of not more than usual severity, the inflammatory tissue-changes generally disappear more or less completely, or, at most, leave behind a slight atrophy. This regeneration is made possible,

where there are no extensive adhesions to the anterior lens-surface, by the re-establishment of a normal blood- and lymph-supply to the tissue after the subsidence of the inflammation. If this return to the circulatory norm be interfered with, we may expect permanent tissue-changes proportionate to the extent of the adhesion. The sluggish absorption of iritic deposits interferes with the supply of nutritive material as well as with the drainage of effete tissue-fluid; all of which has a bad effect on the regeneration of this delicate membrane. A further injurious factor is that of mechanical traction, which is inevitable in case of marked adhesions. The usual pupillary oscillations are prevented by the synechiæ, causing a constant drag on the tissues, and still further favoring the development of nutritional disturbances. To all this there may be added the development of glaucomatous tension. The more marked the adhesions between lens and iris, the more surely will these various agencies be free to exert their pernicious influence.

As to the manner in which punched-out defects are formed, no clue is given by the observation of the cases recorded above. We probably have to consider the defects involving the anterior layer alone as precursors of complete perforative atrophy, for where both layers are involved we find entire correspondence of the defects in the two coats, so that a certain interdependence of the atrophic process in the anterior and posterior layer must be assumed. This would also be in accord with the anatomical arrangement of the iris-vessels, as the nutrition of the pigment-layer also depends partly upon the vessels of the iris, and any disturbance of circulation must likewise affect the nutrition of the deeper layers. This disturbance is intensified by an intimate adhesion of the pigment-epithelium layer to the anterior surface of the lens, which alone is sufficient to obstruct the processes of imbibition in the pigment epithelium. The form of the defects varies greatly. In one case, the defects were like narrow radial fissures; in the second, they were concentric with the pupil. This might be explained by differences in the degree of firmness or in the extent of the adhesions. As to the

location of the openings, it can only be said that it was impossible to determine a predisposition of any particular part of the iris. The crypts of the anterior surface do not seem any more disposed to the formation of atrophic perforations than any other parts. The observation of irido-dialysis in consequence of posterior synechiæ (Talko, Franke, Wecker) agrees with the well-known fact that the ciliary attachment of the iris is uncommonly delicate and loose. At this point destruction of the tissue by atrophy would take place most easily. It is true that such peripheral separations are not quite analogous with the defects described above, as the mechanical factor of traction plays a much more active rôle. Finally it is of interest to note that in not a few cases the atrophy at first affects the pigment-layer chiefly and spares the anterior layer for the time, so that the pigment epithelium may entirely disappear, while the atrophic anterior layer still remains as a distinctly visible membrane. This brings about the pictures in which, under focal illumination, the opaque lens appears as a yellowish-gray background to the circumscribed defect in the pigment-layer, being dimly seen through the translucent anterior layer. Such atrophies of the posterior layer seem to originate preferably in the region of the sphincter.

Whereas we have had to deal, in the cases thus far described, with atrophies occurring on an inflammatory basis, and due mainly to nutritional disturbances of particular portions of the iris, probably those implicated in posterior synechiæ, we shall now present a number of observations in which the etiologic factor of the loss of tissue was more purely mechanical.

Case 4.—Clara S., aged eleven, school-girl, came to the clinic in January, 1902, on account of defective sight. The mother states that the child had had a corneal ulcer in infancy. On examination, both eyes are found to be free from irritation. In the left eye there are old diffuse maculæ and marked irregular astigmatism (see Fig. 3). In the right eye there is a nearly central leucoma about the size of the head of a match, which forms the most prominent part of the slightly staphylomatous cornea. The periphery is slightly cloudy, and the central opacity is

gradually lost in the clear cornea. It is vascularized by a few vessels running in from the limbus. The iris is adherent to this leucoma in such a way that the sphincter is almost completely free, while a point on the temporal side near the margin of the somewhat eccentric pupil has become attached to the leucoma. Above and below, the iris is well preserved, and runs in an inclined plane from the periphery to the point at which it is attached to the posterior surface of the cornea, but in the temporal portion there is an approximately triangular area of distinct atrophy. The apex is directed toward the leucoma; the base runs parallel to the corneal margin. This area is divided by a ridge of preserved iris-tissue (anterior layer) into two almost equal halves, in which the anterior layer is entirely gone. In the vicinity of the angle of the anterior chamber alone there are a few small remnants of the attachment of the iris. Between the spaces which have been formed in this way and lying upon the anterior layer of the iris, which at this point is tightly stretched, the brown pigment layer appears at a deeper level arranged in rather broad bands, and also traversed by fissures which run in a horizontal direction. Through the latter the fundus can be clearly seen on transillumination. The corneal microscope shows a distinct radial striation of the pigment layer which is slightly separated from the anterior layer, and, like the latter, tightly stretched. Under homatropin the pupil dilates but slightly on account of its partial fixation, without causing any slackening of the ridges of the temporal portion or wrinkling of the pigment layer. There is no monocular diplopia; and the patient cannot see through the secondary aperture when the pupil is covered.

Case 5.—Paula H., aged fourteen, school-girl, was struck in the right eye with a gun-wad in December, 1900. On admission, on the day of the injury, there was a jagged wound in the cornea about *4mm* long, running from the upper temporal to the lower nasal quadrant. The anterior chamber was partially abolished; the blood-stained iris lay against the posterior surface of the corneal wound. The pupil was oval and drawn toward the wound. Swollen lens-masses were seen in the pupillary area which could not be transilluminated. Good projection. The injury gradually healed, the lens becoming entirely cataractous. A year later the eye was slightly divergent, and there was a broad anterior synechia below and to the temporal side of the pupil,

which was also attached by its temporal margin to the corneal cicatrix. The pupillary margin was adherent throughout almost its entire extent with the cataract, so that there was only partial dilatation after instillation of a mydriatic. The iris-strands which were adherent to the scar appeared as a tough, uniformly cicatricial tissue drawn strongly toward the pupil. At the ciliary border, corresponding to the point of greatest traction by the synechia, almost entirely in the iris-angle, three small triangular openings are seen in the iris-tissue, separated by a strand running to the corneal scar. These defects are quite small. They are black, and are due to complete loss of the anterior layer of the iris at these points. They cannot be transilluminated, and show in the depths the pigment layer of the iris which even with the corneal microscope presents no details of structure. The defects are sharply defined outward, as well as on both sides where the tightly spanned iris-fibres rise up in ridges. The structure of the iris shows no other abnormalities.

Case 6.—Andreas H., aged twenty, hair-dresser. In 1892 the patient was struck in the right eye with the fist several times. The eye became very much swollen, and sight was permanently lost. He did not seek medical advice until a month after the injury, when, he says, he was operated upon twice. On admission in July, 1902, the following condition was noted: O D (see Fig. 4), slightly divergent. V=perception of light with good projection. The eye is absolutely quiescent; the cornea is slightly oval, with the long axis running upward and inward. This change is due to a broad white scar running in a similar direction through the sclera, and extending a little over the corneal margin below. Within this scar there is dimly seen a bluish stripe below, and upward and inward a darker pigmentation. The cornea is clear, except for a small linear scar on the nasal side. There is no pupil. The anterior chamber is rather deep upwards and inwards, and becomes steadily shallower downwards by reason of an extensive anterior synechia at the lower corneal margin, formed only by the upper half of the iris. The individual fibres run almost vertically, and converge but slightly at the two outer margins of the cicatrix. The upper half of the iris is stretched across the anterior chamber like a tense curtain. At the point of incarceration there is a jumbled, felty, structureless brown mass, and attached to it the very much

attenuated iris, which shows a number of perforations. The atrophy is so far advanced that at three points large fissure-like arcades have formed, between which small bands of preserved iris-tissue are seen. Even in the crevices themselves fine shreds of iris-fibres appear running radially to the structureless membrane spoken of. Examination with the corneal microscope shows a distinct division of the iris, as to its structure into three parts, a middle and two lateral parts. The middle section corresponds to the point at which the lower margin of the iris retracts from the corneal scar, and runs almost vertically. At this point the iris is most thick, composed of straight and rather thick strands, and of a yellowish-brown color. This portion reacts to light by an up-and-down motion comparable to the play of the pupil. At the lower end of this triangular middle portion of the iris, and attached to its posterior surface and dimly seen through it, there is a grayish-white mass of shred-like exudation which participates in the motions of the iris just mentioned. The stretching of the iris-fibres increases, while their thickness and motility become less towards both sides of the above-mentioned ridge. The lateral portions of the iris are distinguished from the middle portions by large defects in the anterior layers which appear as dark splits. The superficial layer, as far as it is preserved, is of a greenish-gray color and exceedingly thin. Toward the upper corneal margin, the tissue of the iris is loose, spongy, and reticulated, while below it is rather ropy or stringy. A few threads of iris-tissue which still remain in the defects of the anterior layer appear tightly stretched and very fine. Between these threads the finely striated pigment layer appears which also participates in the motions of the iris-threads. In the upper part of the arcades arched threads connect one ridge of tissue with the next, and similar strands are found below. The defects of the stroma in the nasal half are darker than those in the temporal half, as the former contain mere stroma-fibres, while some of them have lost the pigment layer, so that, especially below, the opaque and dislocated lens can be seen through the defects as a whitish mass with rounded outline, while above there is some reflex on transillumination.

The last three cases show very instructively how the iris acts under the influence of abnormal traction. In all three, there is a prolapse of the iris, which has become adherent

and led to a fixation of the iris between this point and its ciliary attachment.

There were no marked inflammatory changes in the iris, although at the beginning of the disease and at the time of the prolapse, respectively, some irritation was present. This was certainly not severe enough to cause any marked tissue-changes in the affected membrane, so that the defects may be considered to a certain extent as due to mechanical causes. The principal factors are the intensity of the traction, which depends on the position of the point of incarceration, and then the length of time during which the iris has been subjected to the abnormal strain.

In Case 5, the iris suffered least from traction, as it is only a short stretch from the root of the iris to the corneal cicatrix, besides which the strain only acted for a comparatively short time, so that the only changes to be noted are two small defects in the anterior layer near the ciliary border; the pigment layer is not affected. This finding may be explained by the assumption that the anterior layer had suffered a loss of continuity at the root, where there is already a certain lack of resistance, and that for the time being this separation had not extended into the pigment layer. In consideration of the short standing of the condition, we are justified in considering the changes noted as the first stage of an iridodialysis. In Case 4, the changes are much more marked, and correspond to the long standing of the cause, actually amounting to ten years, which in the case of this girl took in the main period of growth of the eye. The two points between which the iris was stretched have separated quite decidedly with the growth of the cornea. This has been compensated to a certain extent, it is true, by the growth of the iris itself. The traction on the iris is, after all, not so great, as the distance from the ciliary border to the point of adhesion is little if any shorter than the entire width of the iris at other points. Although the iris tissue is otherwise entirely uniform in structure and without any crypts, lacunæ, or other differences in thickness, a blind caprice seems to have allowed individual iris-fibres to be preserved in the middle of the triangular area, while a little

to one side of it the atrophy of the anterior layer has advanced to complete loss of many of the iris ridges. This may be due to the fact that the atrophic portions of the iris were subjected not only to the traction but to a second vertical strain depending on pupillary motion. It is noticeable that the periphery of the iris, supposed to be lacking in resistance, is entirely unchanged, and that the atrophy first appears at a point nearer the leucoma. In the pigment-epithelium layer, we find a system of atrophic defects, which does not correspond at all with the apertures in the anterior fibres of the iris, so that the total area which can be transilluminated is somewhat lessened. In both layers, particularly the anterior, the long diameter of the openings is in the line of greatest traction.

Incomparably more marked are the changes due to excessive and lasting traction in the eye last described (Case 6), where we have to deal with an extensive traumatic prolapse of the iris, whose pupillary margin has also been implicated in the adhesion to the corneal scar. As the latter is situated almost at the limbus, the iris has been stretched to double its normal dimension, and the high degree of the strain is shown by the presence, in the anterior layer, of numerous defects, which are unusually extensive as the traction has been active for quite a number of years. Here again the direction of the defects corresponds to that of the drag on the iris. The presence of a number of openings has produced a stellate figure with the corneal scar as a centre. The pigment layer as before shows a certain independence in its reaction, expressed in a comparatively small number and extent of the defects.

A comparison of these three cases shows that the anterior layer of the iris has a greater tendency to the formation of holes, and that the defects in the pigment layer are smaller and do not correspond to the former. This might lead us to infer a greater resisting power of this layer, as Oblath has done from his observations.

This view, it is true, is opposed to the generally accepted belief that the pigment layer is practically inelastic and not at all tough, and clinical experience of the ease with which

posterior synechiæ are torn certainly speaks against any such resistance on the part of the pigment layer. The apparent contradiction is explained if we consider the inelastic friable layer as the posterior layer of the retinal pigment epithelium, while according to Grunert the anterior layers are particularly elastic on account of the presence of the easily stretched fibres of the dilatator. This elastic layer, the dilatator-lamina, is closely attached to the stroma of the iris, but can easily be detached from the superjacent retinal pigment-epithelium. The surmise naturally occurs that a separation of this sort may have taken place in the cases reported. Now there is not a trace of pigment to be found on those shreds of the anterior layer which have been preserved, and even if histologic proof be lacking, the conclusion seems justified that the separation between the two, iris-stroma and pigment-layer, took place as a whole, and that the muscular element of the posterior pigment-layer is accordingly to be sought in the pigmented membrane, which can be seen in the lacunæ of the iris-stroma. This is supported by the fact, noted in Case 6, that even where the stroma tissue is lacking, the remaining pigment-layer participates in the movements of the still extant elements of the stroma, contracts and expands, and so must contain elastic tissue. (The failure of the stretched and mechanically fixed pigment threads in Case 4 to react to homatropin proves nothing as to the existence of contractile elements in them.) We must bear in mind furthermore that the mechanical factors attending fixation of the iris after prolapse and synechia are not at all like the experiment of removing the posterior epithelium with a brush. Longitudinal traction on the surface of the iris could cause a diastasis of the two coats by gradual loosening. This occurs because the layer actually fastened to the cornea and thus impeded in its motion is the stroma, while the posterior layer containing the dilatator is not so firmly attached, and tends to contract where possible, and accomplishes this by partially freeing itself from the firmly fixed front lamina. Assuming constant oscillation of the pupil, the varying swing in the two layers would represent a mechanical factor of separation, which is still

further assisted by the difference in the histologic structure of the two coats to be seen under the microscope in any iris. The pigment layer is a structure which has much more cohesion than the loosely woven meshy iris-stroma.

This view is further supported by the consideration that it is hardly possible for the pigment epithelium, consisting as it does of a single layer of cells, to have remained intact as a membrane in spite of long-continued strain unless supported by the lamina of the dilatator in front. The nature of the tears, too, is not that found in membranes of one cell-layer, as in these the intercellular margins first become loosened by the traction, so that in the first stage of the process we should expect the formation of numerous small defects which would not coalesce and form larger ones until later. Comparing the two series of cases, we see that perforative atrophy, occurring as a result of severe irido-cyclitis following the formation of anterior synechiæ, involves both layers of the iris to the same extent where they have been simultaneously affected, and in accord with the inflammatory alteration of the entire iris, without any special localization. In traction atrophy following anterior synechiæ there is a certain regularity, the affected section varying according to the position of the adhesion, and the atrophy occurring in the most tensely stretched portion, with this limitation, that the pigment layer while degenerating maintains a certain independence in regard to the form as well as the extent of the defects and is less seriously affected by the process.

As to the interdependence of pigment layer and iris stroma, these clinical observations show the remarkable fact that the nature of the separation between the two layers varies with the location of the adhesion; posterior synechiæ causing a separation of the pigment epithelium from the dilatator lamina[1]), while attachment to the cornea results in a division of the iris into stroma and pigment layer. Finally I may be permitted to report a case of circumscript

[1] This may go so far that in annular posterior synechia the play of the pupil is completely preserved; the iris, in contracting or relaxing, then moves over the surface of the adherent pigment layer.

atrophy of the iris, presenting conditions of which I have found mention in only one instance in literature. This was a case of perforative defect of the iris in an eye affected with chronic glaucoma.

Case 7.—F. H., maid-servant, aged twenty-two, says that as a child she was always sickly and considered to be scrofulous. At fourteen she had an inflammation of the eyes which led to blindness overnight (?) In the following year she again became blind, and could not see for 18 days. After that vision gradually became worse. There is no history of specific or congenital affection. At the first examination in October, 1900, the following condition was found:

V O D, $\frac{5}{15}$, V O S, $\frac{5}{35}$, without correction.

O D (see Fig. 5): No external evidence of irritation Slight entropion of the lower lashes causing some corneal abrasion in the lower temporal quadrant. There are some maculæ at this point, as well as in a crescentic area at the upper margin and for several millimetres at the temporal border. The anterior chamber is shallow. The pupil is not quite circular and is displaced to the temporal side, reacting well to light and contracting promptly on the instillation of a myotic. At the nasal margin of the pupil there is a fine reddish-brown edging somewhat thicker at some points, which is entirely wanting on the temporal side. The pupillary portion of the iris, of a light yellow-brown, shows a structure of rather broad and in part irregularly thickened knotty fibres, and is continuous and on a level, above and to the nasal side, with the peripheral portion of the iris, which as a whole shows a like coloration. In the lower temporal region the peripheral portion of the iris is darker and inclines to black. Closer inspection shows a superficial layer of tissue consisting of scanty fibres, and a deeper one composed of a felty brown weave near the minor circle, and at the periphery, near the iris angle, a broad bluish-gray system of filaments arranged circularly. In the upper temporal portion there is a broad black split about *2mm* wide, bounded above, *i. e.*, nasally, by a somewhat broader area of the deeper layer, and below, *i. e.*, temporally, by a rather thick fibre of the upper layer. A second split appears in the horizontal meridian, the bottom of which contains fine striate fibres. It is brownish gray, shallower and narrower than the other, and less extensive. Halfway

between these two defects there is a third which is hardly more than a small and shallow crevice. All three defects can be transilluminated.

The contour of the first aperture varies with the size of the pupil and with its changes as the pupil reacts. This also affects the tension of the fibres on the surface of the iris.

O S (see Fig. 6) : The eye is free from irritation. There is an annular opacity at the limbus, which particularly above and temporally shows a distinct radial striation and a bluish-gray hue. In the centre of the cornea there is a flame-shaped opacity composed of closely set, small punctate deposits, and a second less dense and of annular form, the borders of which are also cloudy. The corneal epithelium is clear and smooth. The anterior chamber is shallow. The pupil is of medium size, larger than the right, deep black, somewhat eccentric temporally and slightly oval ; it reacts well to light. There are no anomalies of the pupillary margin, and above all no synechiæ. The anterior surface of the iris appears lightly striated near the pupil. In the iris as a whole two layers can be distinguished. The anterior layer lies on a level with the pupillary portion of the iris and, beyond the minor circle, is composed only of strandlike fibres, with the exception of a broad area in the upper temporal region. The deeper layer represents the actual groundwork of the iris, and is composed of a more densely woven tissue. The most striking condition is found at the nasal side of the horizontal meridian. Here two brownish fibres with irregularly jagged edges diverge from the minor circle and embrace a black diamond-shaped opening. The upper fibre is attached at its central portion to the minor circle by an irregular network, is markedly constricted at the middle, shreds apart at the end, and disappears behind the opaque corneal margin with a triangular base at the iris angle. A little above this there is another slender fibre which appears lax or tense according to the size of the pupil. Below, *i. e.*, deeper than the above-mentioned narrow divergent fibre, and toward the periphery there is a lamina of loosely coiled radial fibres, belonging to the deeper layer of the iris, and having at its lower end two fibres of uneven thickness which, like the one described above, are stretched or relaxed by the play of the pupil. Above the superior diverging fibre the ciliary portion of the anterior layer has fallen out completely. Within this area the minor circle is unevenly edged. Some radial fibres run from it

to the deeper layer. At one point of the edge there is a fibre almost perpendicular to the surface of the iris which looks as if it had been torn off at its peripheral end and had snapped back. Besides this there are numerous crevices in the stroma of the iris in this region, not amounting to actual fissures, so that no transillumination of the iris is possible above the diamond-shaped defect already mentioned.

The lower pillar of iris tissue bordering the defect is broader, and ends in a triangular base-plate. Halfway between the minor circle and the ciliary margin, a small fibre runs back almost at right angles to the minor circle. At the point where it touches the pupillary portion of the iris there is a fine network, which also appears at the corresponding point of the upper pillar, and with its light threads and dark spaces looks almost like a Gothic lattice-work. The black aperture lying between the two pillars of iris tissue reaches almost to the ciliary margin, can be transilluminated, and takes on a long or rounded contour according to the size of the pupil, changing also with the pupillary play. Below and to the temporal side there are two more defects in the anterior layer, of which only a few fibres are left, enclosing dark meshes, but without any real perforations. The fundus of both eyes shows typical glaucomatous excavation with distinct hooking of the vessels. There is marked concentric contraction of the visual fields. Intraocular tension is not decidedly increased.

It is not easy to interpret this unusual finding: the formation of a circumscribed defect or accessory pupil in the iris. The question arises whether we have to deal with a congenital defect, an irido-dialysis, or limited aplasia usually summed up as polycoria, or whether this loss of iris tissue is to be considered as a result of the glaucomatous process.

The clinical picture of iris-atrophy in glaucoma, which Schnabel has so classically drawn, shows generally no focal localization, being characterized rather by a true wasting of the tissue, which affects the appearance of the whole surface of the iris, advances centrifugally, and leads to a narrowing and thinning of the entire diaphragm. The iris in glaucoma is further marked by the behavior of the pupil and by

the tendency of the pigment layers to proliferate and to turn over the pupillary margin (ectropion uveæ).

With regard to Case 7, there is no evidence of the iris being concerned in the glaucomatous process except the defects in this coat. It is especially to be noted that the details of the iris are clearly marked, and that its color and brilliancy do not indicate an atrophic process. Accordingly we must consider the form of glaucoma manifested in this case as a glaucoma simplex, involving the posterior parts of the eye, especially the optic nerve. The absence of a history of typical glaucomatous attacks, the reaction and small size of the pupil, and the tension, hardly admit of any other interpretation. The sudden fits of blindness mentioned by the patient are probably nothing but blepharo-spasms occurring in the course of the keratitis which led to the cornea opacities. This would account for the slight entropion of both lower lids as residua of the spastic condition.

In a review of the literature we find that Bentzen and Leber have described an almost exactly similar case of circumscribed defect of the iris. The patient was a woman of twenty-eight, who had become blind through absolute glaucoma. In her case: "The pupil is wide and motionless; below it there is a secondary pupil, divided by a small bridge of tissue from the first, and reaching almost to the ciliary border. Edge of the pigment layers broadly everted."—"As to the formation of the accessory pupil, all that could be ascertained from the history of the case was that when the patient was only fourteen years old a small black spot had appeared near the pupil and slowly grown larger (?)." And farther on: "The iris is in part markedly atrophic, and this seems to have given rise to the double pupil noticed *intra vitam.* In sections running through the margin of the accessory pupil all of the iris tissue but the pigment epithelium has dis appeared."

Franke's work on polycoria contains a number of similar observations. In the interpretation of our findings the question must also be considered whether the defects might not have been due to the antecedent inflammatory processes In both eyes. The absence of synechiæ and of capsular

deposits speaks against this possibility, and excludes any adhesion of the pupillary margin which would have been firm enough to allow the presumption of a mechanical traction.

We are thus led by exclusion to the hypothesis that the condition is probably congenital, although unfortunately there is nothing in the previous history to support this view.

Histologic examination would clear up the pathogenesis of such a case. The clinical conception is supported by the otherwise quite normal structure of the iris. We might apply to our case and to the formation of an accessory pupil the theory of Manz as to developmental defects of the choroid, as far as the existing glaucoma points to an anomaly of the choroid or to a disturbance of the general nutrition of the eye.

NOTE.—The corneal opacities have not been shown on the illustration, as they would have obscured the details of the iris. The right eye is shown represented with the pupil under ordinary conditions; the left, under homatropine.

TRANSACTIONS OF THE OPHTHALMOLOGICAL SECTION OF THE XVTH INTERNATIONAL MEDICAL CONGRESS AT LISBON APRIL 19–26, 1906.

REPORTED BY DR. VON PFLUGK, OF DRESDEN.

Translated from the German Edition for May, 1906, by Dr. MATTHIAS LANCKTON FOSTER.

FIRST MEETING, FRIDAY, APRIL 20, 1906.

Vice-President FREDERICO MEYER, of Lisbon, opened the session with a brief speech of welcome. Chairman JOSEPH, of London, later v. GROSZ, of Budapest, presided.

I. General Subject: **Myopia and its Treatment:**

(*A*) SATTLER (Leipsic), in the name also of his conferee C. HESS, presented the following conclusions:

1. It is possible to prevent increase of myopia by its constant full correction with maintenance of a sufficient working distance and avoidance of too great a lowering of the visual plane.

2. The full correction can frequently be worn by young people with myopia of 10 D or even more.

3. If then it is still progressive the progression is usually only slight.

4. Even in high myopia it is necessary to produce by means of the correction a working distance of at least 20 to 25*cm*.

5. A timely, proper correction seems to act as a protection against the dangers which threaten the myopic eye.

6. The insufficiency of convergence is usually relieved sufficiently by the full correction of the myopia to prevent any annoyance.

7. Muscular asthenopia from exophoria necessitates, in addition to the correction of the myopia, a tenotomy of one or both external recti, rather than a corresponding combination of prisms.

8. In myopia of 18 D or more in young people up to the end of the thirtieth year the extraction of the transparent lens is to be recommended.

9. Fukala's method of primary extraction is preferable to primary discission because of

(*a*) the less number of operations ;
(*b*) the much quicker restoration of good vision ;
(*c*) the much greater security from loss of vitreous ;
(*d*) the avoidance of increase of tension and of its consequences ;
(*e*) the apparently less danger of post-operative retinal detachment.

(*B*) UHTHOFF (Breslau): The treatment of the intraocular complications of myopia, particularly retinal detachment (Author's abstract).

UHTHOFF referred to the treatment of the intraocular complications particularly met with in high myopia. First the treatment of spontaneous detachment of the retina, ascribed in more than half the cases to myopia, is considered, based on the observation of over five hundred cases which have been reported on former occasions. By a cure of the detachment Uhthoff means a reattachment of the retina with no reference to the amount of vision restored, so that a blind eye might exhibit a cure of the retinal detachment.

In these five hundred cases of spontaneous detachment of the retina, myopia was present in about 60 %. In about 4.5 % of all cases of myopia observed by Uhthoff himself there was detachment of the retina, though other authors find the percentage much less—Hertel 0.96 %, Proskauer 0.71 %, and Schleich 2.3 %. It naturally makes a great difference whether the material is accumulated in an eye clinic, where detachment in not rarely met with, or in statistical investigations, as of schools, outside of the eye clinics.

The treatment of retinal detachment is non-operative and operative. Among the non-operative therapeutic means are to be enumerated the pressure bandage, rest, diaphoresis by means of pilocarpine or salicylate of soda, the use of resorbents such as iodide of potassium, iodide of sodium, and mercury, the internal administration of organic preparations, purgatives, bleeding counter-irritation, and the instillation of dionin into the conjunctival sac.

The pressure bandage associated with absolute rest is still a

means advocated by most authors, though occasionally it is directly denounced.

Injections of pilocarpine have been productive of very good results according to some authors, not so good according to others, while occasionally this method of treatment has been rejected as too offensive for the patient. Some authors ascribe a special value to salicylate of sodium, and a certain favorable influence on the diaphoresis by means of the salicylates cannot be denied, although Sattler correctly pointed out that so immediate an influence on the subretinal fluid or on the supposed choroiditic process cannot be expected as on chronic exudates of accumulations of fluid in other parts of the body.

The medicamentous treatment of retinal detachment, iodides, mercury, etc., was based chiefly on the theory that a choroiditis was the cause of the disease. With the change in theory as to the pathogenesis of detachment, this method of treatment has fallen into disuse, and cases of true syphilitic detachment are extremely rare. Uhthoff is not sure that he has ever seen a case.

The use of antiphlogistics, leeches, foot-baths, sinapisms, etc., has been recommended, but they have never proved very useful. The same is true of drastic purges, the internal use of organic preparations, and the instillation of dionin or eserine into the conjunctival sac.

Operative treatment includes:

1. The puncture or division of the detached retina in order to form a communication between the vitreous and the subretinal space, which was soon abandoned.

2. Scleral puncture in the region of the detachment. A simple and harmless procedure which in connection with a pressure bandage occasionally is of benefit. Various modifications of the operation have been proposed, but without any true improvement.

3. The attempts to produce constant drainage of the subretinal fluid are to be considered abandoned.

4. Electrolysis aimed at the direct resorption of the subretinal fluid and a secondary inflammatory reaction on the part of the choroid which would be favorable for reattachment. Good results have not yet been obtained.

5. Iridectomy. The results varied, but on the whole were poor.

6. Attempts to excite an adhesive inflammation of the choroid by the introduction of irritating substances into the subretinal

space. Some reports were relatively favorable but there arose many objections to the operation and reports of disastrous results. Experimentally severe reactions were obtained in the eyes of animals in this manner. Later Schoeler tried painting the bared sclera in the region of the detachment with tincture of iodine to obtain the desired inflammatory reaction of the choroid.

7. The punctate cauterization of the sclera in the region of the detachment with the Pacquelin or galvano-cautery was doubtless able to excite a certain inflammatory reaction in the choroid lying on the sclera, as was shown by experiments on animals, and was performed several times for therapeutic purposes. In association with other means, such as subconjunctival injections of salt solution, Dor has obtained relatively very good results.

8. Subconjunctival injections, particularly of salt solution, are dealt with extensively, the writer going into their history and the question of the explanation of the method of their action. Some have recommended the use of strong salt solutions, 20 to 30%, but he thinks they should never be employed. Darier recommends the addition of dionin, as well as the subconjunctival use of sodium sulphate, sublimate, hydrargyrum oxycyanate, etc. A direct action of the substance injected subconjunctivally is not to be expected when the sclera is intact.

9. The combination of a fine perforation of the sclera in the region of the detachment with subconjunctival injections came next. Strong solutions are to be avoided on account of the danger of changes within the eye, particularly hemorrhages. According to Dor the combination of circumscribed cauterization of the sclera with subconjunctival injections of salt solution may be used.

10. During the last year the intracapsular injection, *i. e.*, into Tenon's capsule, has been advocated instead of the simple subconjunctival. But strong solutions thus used may likewise injure the eye. The writer has seen two such cases, and other authors have reported injuries due to prolonged subconjunctival use of too strong solutions of salt.

11. Uhthoff next turns to Deutschmann's operation. The injection of vitreous he has not used chiefly because in a series of experiments instituted by Wernicke severe reactions and destructive changes were induced in a portion of the cases by the injection of preparations of the vitreous as given by Deutschmann. Uhthoff also raises various objections to Deutschmann's incisions

through the vitreous and retina and is of the opinion that their performance in the way described by him is frequently impracticable on account of the anatomical conditions. Deutschmann himself has greatly modified his operation.

12. The plan to replace the retina in myopic eyes by diminution in size of the tunics of the globe and removal of the subretinal fluid gave several good results. Uhthoff considers the operation too extensive to be of general value in ophthalmological treatment. Severe vitreous hemorrhages have been observed several times.

Uhthoff then passed to his own observations. Of all the cases of cure of retinal detachment reported in literature, 24 % recovered under operative treatment, 45 % under non-operative, and 31 % under no treatment whatever. In thirty-six recoveries among 422 cases in his own material, eighteen were spontaneous, ten took place under non-operative treatment, and eight under operative, a total of 8.5 %. The second part deals with the other intraocular complications of myopia, changes in the choroid, retina, and vitreous. The treatment of myopia by operation or by glasses is not included in the scope of the paper.

Uhthoff first gave statistical data in regard to the occurrence of the intraocular complications of myopia and recommended that these complications be divided into groups with reference to their treatment.

1. Those which are slowly produced by the mechanical stretching of the posterior segment of the globe, conus, diffuse pigment atrophy, dehiscences in the region of the posterior pole of the eye. These are not amenable to treatment.

2. The large, sharply defined choroid patches, which result in atrophy of the choroid, proliferation of pigment, which occasionally leave behind gray or grayish-black scleral scars, which not rarely are the source of hemorrhages both in the choroid and in the retina. These are quite analogous to the true choroidal and chorio-retinal changes.

3. The so-called black spot in the macular lutea. In the last two groups treatment is necessary. Mercury and the iodides internally, with mild saline cathartics, are indicated, while bleeding, dry cups on the temples, and particularly hot foot-baths are sometimes useful. Subconjunctival injections of salt solution are valuable to a certain degree, though much overestimated. Atropine is useless in high myopia, as is also local massage of the eye,

but general massage of the body may be occasionally of service Treatment with the constant current has not proved efficient, any more that treatment with myotics. The removal of the lens has no curative effect on the intraocular changes. The so-called neuritis of myopia is often only the expression of a symptom of supertraction and therefore is not a subject for medical treatment.

Isolated floating bodies in the vitreous offer no opportunity for therapeusis, while large inflammatory vitreous opacities, hemorrhages, etc., are to be treated in the same way as the abovementioned choroidal and retinal changes, groups 2 and 3.

DISCUSSION OF SATTLER'S AND UHTHOFF'S PAPERS.

AXENFELD (Freiburg). The refraction should be accurately determined under mydriasis with a stenopaic slit. The markedly good results obtained by Deutschmann's methods must stand the test of time from an objective standpoint.

WICHERKIEWICZ (Posen): When the pressure bandage is not serviceable it is because it has not been properly applied. He had had the opportunity to demonstrate a good result, obtained by treating detachment of the retina with electrolysis.

DA GAMA PINTO (Lisbon): As 50% of the recoveries from detachment are spontaneous, and of the remaining 50% part follow the treatment immediately, and part after the lapse of some time, it is probable that the number of spontaneous recoveries is greater than 50%, and the question must be asked whether the treatment has not interfered with the process of healing. In many cases a pressure bandage is unbearable on account of pain, so the only bandage which can be worn is simply protective, and this is useless in the treatment of detachment.

VOSSIUS (Giessen): One should always try to give the full correction for myopia, but in myopia of moderate degree the obstacle is frequently met with that the patients refuse to wear glasses for near work. He has seen no true increase of myopia when the full correction has been worn. Detachment after discission for myopia of high degree is certainly not in all cases to be ascribed to the operation, for in one case he observed the onset of the detachment a few hours before the time determined on for operation. This patient then went to Deutschmann, and returned with hemorrhage in the vitreous.

VON PFLUGK (Dresden) reported four cases of detachment,

which he had treated according to Deutschmann's method. In two cases reattachment took place, one case was lost through vitreous hemorrhage and iritis after vitreous injection, and one was permanently improved by the vitreous injection.

OSTWALD (Paris) considers periscopic glasses very useful for increasing the visual acuteness, especially in peripheral vision, and for lessening the discomfort caused by the glasses in near work. For this purpose the "orthoscopic" glasses recommended by Tscherning accomplished nothing. He also spoke in favor of the galvanolytic treatment of retinal detachment, and reported a case of very extensive detachment which he had treated more than twelve years before, and still retained nearly perfect vision.

FRANKE (Hamburg) agreed with Axenfeld that Deutschmann's results must undergo the test of time. He had observed a case of spontaneous recovery from detachment, with good permanent vision. Deutschmann's treatment is not without danger, and it is a matter for consideration whether in consequence of it the condition of the patient may not be made worse, and enucleation become necessary, on account of the severe irritation caused by the injection of vitreous.

1. WICHERKIEWICZ **Retinitis punctata albescens** (author's abstract). This form of retinal disease, first described by Mooren, is still rarely correctly recognized. Wicherkiewicz collated the cases described in literature, excluded some from this group, reported an accurately observed case of his own, and stated the following conclusions:

(1) Retinitis punctata albescens is a disease which is distinctly definable clinically and ophthalmoscopically.

(2) The vision and the visual field are usually normal, but night blindness exists, so that with reduced light the central vision is lowered and the fields for colors are greatly narrowed.

(3) Ophthalmoscopically numerous little spots are visible behind the retinal vessels, which do not invade the macula or extend beyond the ora serrata. The central vessels are often unchanged, there are no opacities of the vitreous and no posterior capsular cataract.

(4) Consanguinity is to be considered the cause, while syphilis, both hereditary and acquired, is excluded.

(5) This punctate retinitis may be associated with other diseases of the interior of the eye, and may then be overlooked. On the other hand, forms of retinal disease which have nothing in com-

mon with this may be mistaken for it, hence caution and exact demonstration are necessary.

(6) It is probably a variety of retinitis pigmentosa, as the retinitis pigmentosa sine pigmento, when present, may be taken to be a beginning of retinitis punctata albescens.

(7) The disease seems hardly amenable to treatment, but in regard to this nothing certain can be said.

Discussion.

Gradle (Chicago) had prepared a paper on this subject, but in order not to take up the time of the meeting presented it in the form of discussion.

The various forms of retinitis punctata (author's abstract).

The name retinitis punctata is applied to several groups of pathological pictures, between which there are transitional types. 1. There are cases with a moderate number of white spots in the fundus, usually surrounding the optic nerve and reaching to the macula. The vision may be normal or moderately reduced, particularly in the eye with the larger number of spots, or the patient may complain simply of asthenopia. These spots pass away in a few months, especially if iodide of potassium is administered. 2. A more important disease, with marked lowering of vision, and frequently with central scotoma, begins frequently with other retinal changes, exudates, and hemorrhages, while the white, minute spots develop later. Occasionally the disease starts as an optic neuritis not recognizable ophthalmoscopically (retrobulbar?). It is disclosed through the scotoma, which cannot be explained by the condition of the fundus, and many times by the subsequent atrophy of the nerve. The disease may usually be improved or cured by treatment, but the vision may be badly impaired. There are probably transitional types between 1 and 2. The choroid is often secondarily affected, and vitreous opacities are formed. In two cases a connection between this form of punctate retinitis and neuritis was probable. The writer has seen in all about a dozen cases of these two forms. 3. Finally is the form which Fuchs has properly denominated retinitis pigmentosa. With this night-blindness is present, frequently with good vision, which usually remains stationary for a long time. The characteristic pigment changes may be found in the periphery, or they may be absent. The white spots scat-

tered over the fundus are then characteristic. The author describes one case of this form.

2. F. MEYER (Lisbon): **Blindness in Portugal.**

The former statistics of the blind in Portugal stated nothing with regard to the causes of the blindness. A recent census gives 6222 blind and 6320 one-eyed among 5,166,841 inhabitants of Portugal, 12 : 10,000. To determine the causes of the blindness the Journal of the Ophthalmological Institute for the past fifteen years was used, whence the causes of the blindness in 2041 cases was learned.

The blindness was congenital in 9.1% of all cases, was due to traumatism in 8.6%, and to small-pox in 7%. Among the one-eyed the number due to traumatism is very great, the percentage due to a single form of injury 40.7.

Since 1901 vaccination has been obligatory, but because of insufficient control epidemics of small-pox still occur.

The most important causes in the number taken from the Transactions of the Institute were tabes, meningitis, trachoma, 3.2%; gonorrhœal ophthalmia, myopia, and glaucoma, 35.17%. In many parts of Portugal trachoma is endemic, and 12% of all the patients at the Ophthalmological Institute suffer from this disease. The number of glaucomas, 35.17% of the entire number, is so great because almost all cases seek treatment too late, and also because the instruction in ophthalmology of the country practitioners is too slight.

Blindness could be avoided or cured in 50% of the cases. The danger of blindness is very slight in childhood, increases gradually as the persons grow older, and rapidly in old age. Stone-workers are the most frequently affected, then fishermen and hunters, then farmers.

SECOND DAY, SATURDAY, APRIL 21, SATTLER PRESIDING.

II. **Serotherapy in ophthalmology.**

AXENFELD (Freiburg). After a brief introduction he said that this treatment is of primary reliance against infection with diphtheria bacilli. The healing action of the serum is indubitable to-day, and Axenfeld takes the ground that the serum should be used not only in all severe and well-marked cases, but also in all cases of pseudo-membranous conjunctivitis in which Loeffler's bacilli are present; for it cannot be denied that a slight affection of the eye may be complicated by a severe and fatal affec-

tion of the throat, and that very mild cases may transmit the contagion to others in whom it may prove very serious. Subcutaneous injection is the best method. In addition, reference was made to experiments with the so-called xerosis bacilli concerning which there is as yet no unity of opinion. The actions of xerosis bacilli, after they have been experimentally injected into the vitreous, are not influenced by the antitoxic diphtheria serum.

The antitoxic tetanus serum has also been found to be useful in ophthalmology, and serum therapy is particularly of value in infections with pneumococci.

The difficulties of investigation are especially great, and it is through Römer's valuable labors that all the results of these investigations have been practically utilized for the field of ophthalmology.

Axenfeld spoke next of the different forms of immunity on account of the possibility of other infections: the active, the passive, and the last found but perhaps very important aggressive immunity. Dacryocystitis and pneumococcus conjunctivitis are pneumococcus diseases which are hardly to be subjected to the serum therapy because of their benign character and the safety of other means. On the contrary, this treatment is very desirable in corneal infections, especially in ulcus serpens and in post-operative infections. Passing to Römer's special serum therapy, Axenfeld spoke of its prophylactic use. The immune serum, together with the incorporation of dead cultures, is to be recommended for this purpose. Römer's statements regarding the division of practising physicians underwent a critical review. Axenfeld desires that the practising physician should despatch cases immediately after prophylactic injection, when, in spite of this, inflammatory symptoms appear. He also discussed the opinion which would oppose the use of serum therapy by the general practitioner in well-marked hypopyon keratitis, especially on account of the possibility of other infections. The removal of material for investigation from the ulcer by the general practitioner he considers hazardous because of the danger of propagation. The proper treatment must immediately follow any such removal.

Next followed the therapeutic use of serums and of cultures. Axenfeld collated the experiences related in literature and added new material, partly his own cases, partly the result of collective

investigation. Unfortunately, the later results have not been as excellent as the former. To 74 published cases he has added 111 new ones, thus obtaining 185 for investigation, and considered the questions of dosage, the clinical course, and the different indications in tabulated form. Of these 185 cases, 57 were treated with passive immunization in the first, most favorable stage, 41 with 10*ccm*, 16 with 20 or more *ccm*. Of the first 41, 20 remained progressive, 21 were checked. A certain healing action cannot be denied the serum in this stage, even though it cannot be thoroughly relied upon. Of the 16 treated with 20 or more *ccm*, 6 were checked and 10 progressed, thus making a total of 27 cases cured, and 30 progressive ; 61 cases in the second, more advanced stage were treated with passive immunization ; 9 were cured, 29 were not cured by 10*ccm* of immune serum ; 6 were cured, 17 were not, by 20 or more *ccm*,—a total of 15 cured, 46 not cured. Some took enormous doses, 60 to 90*ccm*, but the largest single dose was 30*ccm*. The value of conjunctival instillations could not yet be clearly determined. From this it appears that the serum therapy alone is justified only in the first stage.

From those not exactly brilliant results, one passes to the combination of the active method, the injection of cultures, with the passive, injection of immune serum. The first should precede and be given intramuscularly, and afterward the other may be given subcutaneously. Axenfeld adds 13 cases to Römer's 24, making a total of 37. Unfortunately the later results are again less favorable than the early ones. Römer reported 20 cures out of a possible 24, while only 4 of the 13 were cured and the rest remained progressive. The combined method is the most efficacious, it is permissible in the first stage, but it must not be relied upon. Successive larger doses may be given, though the expense soon becomes very great, but when such an ulcer is finally checked, an uncertain result even with 90*ccm*, the resultant scar is perhaps larger than it would have been if it had been cauterized in the beginning. In medium-sized and large ulcers, the use of the combined method alone is also not to be recommended. It is to be hoped that the most recent and, as yet, unproved aggressive method will give better results.

Another very limited field for the use of the serum is the pneumococcus infection after deep injuries and operations.

The action on the interior of the eye is still less. A true immunization of the vitreous cannot be obtained even with the aggressive method. Prophylaxis is of the first importance because it is difficult or impossible to influence the disease when it has become established. A streptococcus and staphylococcus serum therapy is not of consequence in ophthalmology because cases which need them are not frequently established, and the serums are doubtful in their action.

The serum therapy suggested by zur Nedden for sympathetic ophthalmia needs further investigation.

The same may be said of the curative power of Römer's jequiritol serum in severe jequiritol ophthalmia.

The injection of hæmolysin in internal hæmophthalmus has not developed into a useful means of treatment.

A further study of immunity with special reference to the eye is indispensable to modern ophthalmology.

3. CABANNES: **Diseases of the optic nerve in hereditary syphilis** (résumé).

These diseases of the optic nerve are relatively rare, and may appear in the form of optic neuritis or optic atrophy. This second clinical form is the usual natural result of the inflammation of the nerve. In very rare cases the atrophy appears to be simple, not neuritic. The optic nerve is then white, its margins sharply defined, the arteries more or less reduced in size, the veins of their normal calibre. The retina and choroid appear absolutely uninjured. The cases we have had an opportunity to see are three and belong to the latter category (atrophia optica heredo-syphilitica). This form of optic atrophy is extremely rare; the form which follows neuritis is much more frequent. Its development depends on the optic nerve itself, either in the form of a retrobulbar neuritis, of a descending neuritis, or of a local phenomenon associated with a retino-choroiditis due to hereditary syphilis. The post-neuritic atrophies may also be called secondary, while the others are primary. Primary atrophy due to hereditary syphilis appears not before the seventh or eighth year. Its course is progressive and disastrous, although in many cases it may be arrested, and even an improvement brought about by means of mercury if given very early. It is therefore indispensable to trace out the true ground of this optic atrophy and to prescribe energetic syphilitic treatment. In

addition, it is recommended that children of parents with hereditary syphilis, when they present only slight symptoms of syphilis at birth, or the mother has previously aborted, should undergo mercurial treatment for several years in order to ward off the onset of symptoms of congenital syphilis.

4. CABANNES: **Blepharoplasty according to the Italian method** (résumé).

The Italian method of blepharoplasty is employed only exceptionally, when the skin about the orbits has been destroyed or is cicatricial and conditions are not favorable for sliding flaps or skin grafting. The flaps are taken from the inner surface of the forearm and made perhaps a third larger than the surface to be covered. The forearm is then fixed to the head with a plaster-of-Paris bandage, so that the flap will not be displaced. The flap may usually be cut away seven days after the operation. Tagliacocci and his followers waited much longer, from fourteen days to three weeks. The earlier separation of the flap lessens the duration of the pain caused by the position of the arm and the head, and the flap has by that time obtained its vitality. A tarsorraphy must be performed, and the lids should not be opened for a month. The contraction of the transplanted flap and of the subjacent tissue proceeds very slowly. The tarsorraphy prevents the retraction of the flap.

DISCUSSION.

WICHERKIEWICZ: If the ectropium is not too large Thiersch's method gives good results. When the defect is very large, pedunculated flaps are necessary. Wicherkiewicz has employed Wardworth's method many times, but has abandoned it on account of the excessive contraction of the flaps.

5. CRAMER (Cattbus): **The occupation myopia of cloth-darners** (author's extract).

I have demonstrated that cloth-darners are subject to a typical occupation myopia by a systematic examination of 100 such workers, taken without selection from three factories.

The duties of the darners are to search faulty places in the rough cloth, to repair broken or unequal threads, and to repeat this after the cloth has passed through the fulling and shearing process. This mending resembles the darning of stockings, but is very much finer and more exact.

Sixty-seven per cent. of the 100 had pronounced myopia, in 21 with astigmatism. Of those employed in two factories 74% were myopic, of those in the remaining one, 64.7%. The degree of myopia ranged from 0.75 to 9 D, the ages from fifteen to fifty-one years. The duration of the darning has a very uneven influence. The visual acuteness frequently showed a certain decrease in the moderate degrees of myopia, but only for distance. Heredity has practically no influence. Formerly (my observations have occupied fourteen years) I met with an extraordinarily large number of cases of spasm of the accommodation. As years passed by they became fewer, and are not to be met with now any more frequently than in other callings.

The diminution of this disease is wholly due to the change from the unsteady open gaslight to the gas mantle and electric illumination. The factory with the smallest percentage of myopia has been lighted with electricity for twenty years.

The injurious influence in the darning is the search for the object, the same as in learning to read among young children. The later power of the imagination and the difference between the black letters and the white paper is wanting. On the contrary, the hyperæmia due to work is greater on account of the bowed position and the nearness of the artificial light.

The results are the same as in school myopia, and never assume deleterious forms in eyes which are normal at the beginning.

The activity of the darner is practically perfectly even year after year, in comparison with the individually varying labors of the student. The observation of the very different results with exactly the same strain for the same length of time forces the assumption of a different bodily disposition, and this is furnished, I think, in Stilling's theory of the influence of the varying arrangement of the superior oblique.

Hygiene, so far as artificial light is concerned, is constantly improving. An attempt to secure correction of the error and the maintenance of a better position among the darners is, in my opinion, in vain, because they do not recognize their deficiency.

6. Vossius: **Ring-shaped opacities on the anterior surface of the lens after contusions of the eye** (author's abstract).

The six observations described by A. Keller in his dissertation directed the attention of the author to this otherwise undescribed

result of a contusion of the eye without rupture of the globe. It appears usually, after dilatation of the pupil by examination with a plain mirror and a strong convex glass, as a ring-shaped opacity in front of the red reflex, placed centrally, and with a diameter of about 3*mm*. The ring usually seems to have a uniform thickness and to be placed where the margin of the pupil lay on the anterior capsule. It perfectly resembles a cast of the pupillary margin.

In two cases it was of a brownish color and visible by oblique illumination with the aid of a loupe. In four cases the non-pigmented ring could be seen only with the plane mirror with a strong convex glass. In one of the first-mentioned two there was within the ring a grayish opacity of the capsule, which later disappeared. In those patients in whom it was visible only with a mirror one could recognize by means of a strong glass that it was punctate.

Within four weeks these rings disappeared and left no trace. No lenticular opacities developed, and in the uncomplicated cases the final vision was normal. The complications were hemorrhage into the anterior chamber, once a slight rupture of the sphincter, and once a rupture of the choroid with vitreous opacities. The ring-shaped opacity on the anterior surface of the lens could not be seen until after the blood in the anterior chamber had been absorbed.

Vossius explains this opacity as a cast of the pupil on the anterior surface of the lens. Either pigment if squeezed out of the cells at the margin of the pupil by pressure of the cornea and iris against the lens and then fixed on the anterior capsule by fibrin, so as to produce a brown ring which resembles that sometimes seen in plastic iritis after dilatation of the pupil, but, unlike the latter, disappears completely after a time, or the pressure of the iris against the capsule produces a non-pigmented ring by causing transient degenerative changes in the epithelium of the capsule similar to the contusion cataracts produced experimentally by O. Schirmer, which undergo complete regeneration and become invisible.

Discussion.

Axenfeld asked whether radiating lines had been observed in the region of the opacity.

Vossius has seen radiating marks in one case, but these disap-

peared under treatment, and thus demonstrated that the opacity belonged to the capsular epithelium.

THIRD DAY, MONDAY, APRIL 23, 1906, WICHERKIEWICZ PRESIDING.

III. Tuberculosis of the eyes.

TREACHER COLLINS (London): After a brief historical account the writer formulated the three classical methods of demonstration of the tuberculous nature of a disease, the histological, experimental, and bacteriological. The most certain and most convenient way is the inoculation of the tuberculous material into the anterior chamber of rabbits or guinea-pigs. The ways in which the virus may be introduced into the eye vary. Greeff and others have seen tuberculous disease result directly from injuries to the eyeball. Endogenous infection was first described by Cohnheim in connection with miliary tuberculosis, a disease in which it frequently occurs, usually in the choroid, more rarely in the iris. In many cases tuberculosis of the eye occurs as a secondary affection to tuberculosis of the bones, joints, glands, or skin.

Tuberculosis of the eye has been met with at all ages from 4 months to 62 years, but is most frequent between the 5th and 25th years. The eighteen cases presented by the writer in tabulated form were between the ages of five and fifty-six years.

Sex appears to exercise no influence, the larger percentage perhaps occurs in females. The most frequent method of introduction into the eye is through the circulation when the tuberculous foci are most frequently found at points of vascular anastomosis, or in the narrowest places of the capillary network.

Opinions differ in regard to the frequency of ocular tuberculosis. Most authors consider it very rare. Michel considers tuberculosis a much more common etiological factor in eye diseases than it is usually supposed to be, and L. Bach asserts that it is not a rare condition.

The histological and clinical picture of tuberculosis of the iris, ciliary body, choroid, sclera, lens, retina, and optic nerve was described. The diagnosis is usually difficult. Injections of tuberculin give efficient aid. Inoculation of the aqueous into rabbits' eyes gave positive proof to Gourfein in two cases. It may be confounded with syphilis, ophthalmia nodosa, lepra, and

sarcoma. The rapid penetration of the sclera by tuberculous growths is of diagnostic importance.

Intraocular tuberculosis may result in caseation, perforation, and shrivelling of the eye, or cicatrization of the nodules. Tuberculin has given different results in men and animals. Schlick obtained better results with T. R. (Koch, 1897) in men than in animals.

Iodoform introduced into the eye seems to weaken the tuberculosis; at any rate it may be considered an aid to other means used at the same time. When the ocular tuberculosis is primary the removal of the eye is important, to guard against a general infection of the body, particularly if it has not been perforated; but its non-removal does not necessitate a fatal result. Some cases have been cured by excision of the diseased portion of the iris. In cases 2 and 7 of those here reported tuberculous granulations appeared in the iridectomy wound, so that enucleation was finally necessary.

DA GAMA PINTO reported a number of patients with ocular tuberculosis treated with T. R. Part were still under treatment.

DISCUSSION.

JESSOP (London) stated that of 15 cases of tuberculous choroiditis which he had seen, 14 had tuberculous meningitis. He believes that all cases of miliary tuberculosis have tubercles in the choroid. Tuberculin should be given in all cases of ocular tuberculosis. The histological picture is not infallible in the diagnosis of this disease. He does not believe that it ever occurs as a primary disease.

CRAMER (Cottbus) has obtained very good results in ocular tuberculosis from the use of hetol.

FRANKE spoke highly of the diagnostic value of alttuberculin. The therapeutic results obtained with T. R. are to be received with a certain amount of caution, because of the possibility of spontaneous recovery,

UHTHOFF said that he had found recovery not infrequent after treatment with tuberculin.

HILLEMANNS (Duisburg) had obtained a brilliant result with T. R. in a case of very severe intraocular tuberculosis, after the diagnosis had been confirmed by means of old tuberculin. He considered clinical treatment unnecessary or even bad.

7. VON PFLUGK (Dresden): The form of the lens in the rest-

ing and the accommodating eye of the ape (*Macac. cynomolgus*) demonstrated from photographs of the eyes under atropine and under eserine.

The forms of the lenses corresponded in general to those given in literature, and showed under strong accommodation :

(*a*) increased curvature at the anterior pole ;

(*b*) sloping toward the equator ;

(*c*) broadening of the equatorial region ;

(*d*) increased curvature of the posterior surface, with sloping toward the equator ;

(*e*) formation of a circular zone, incurvated toward the interior of the lens at the base of the lenticonus posterior (a new observation) ;

(*f*) decrease of the equatorial, and increase of the anterior posterior diameters.

As the basal form of the lens approaches the spherical, it follows that under accommodation it departs from the approach to the spherical form postulated by Helmholtz for the accommodating lens.

DISCUSSION.

OSTWALD (Paris) noted the omission of a description of the technique. The form of the lens in accommodation could not be explained through relaxation of the zonula, Helmholtz's theory, for the elasticity of the lens could not produce the described change of form of the posterior surface of the lens. The theory advanced by the writer, tension of the fibres of the zonula during accommodation, could explain without difficulty partial changes in the form of the lens, perhaps to offset a conical astigmatism.

TREACHER COLLINS has observed the same form of the lens in the eye of a child which was enucleated for buphthalmos as that described by the writer of the lens under the influence of eserine, and ascribed its origin to tension on the fibres of the zonula.

VON PFLUGK, in closing, briefly described the technique which had been called for.

8. OSTWALD (Paris): **Demonstration of the thermærophor** (author's abstract).

The thermærophor is a small apparatus used for the purpose of applying hot air in baths to the eye, the ear, or other circumscribed portions of the body. A temperature of from 150° to 180° may be obtained by its means, and is under the control of

the patient, so that the limit of tolerance is never passed. The first model, described in 1904, was heated with gas; the one exhibited at this time, by means of electricity. It is useful in the treatment of many chronic inflammations of the lids and globe.

DISCUSSION.

CORREA DE BARROS (Oporto) uses a hot-air apparatus in the treatment of trachoma and is pleased with its effects.

9. TOMLINSON (London): **A new perimeter** (author's abstract).

Tomlinson exhibited a self-registerlng perimeter in which the usual quadrant is not used. On looking through it one sees a double image of a mark, in consequence of refraction of the light through a prism, or reflection by means of a mirror. The second image may be moved outward from 0° to 35° by means of the prism, from 0° to 75° by means of the mirror. An indicator moves over a chart attached to the table in correspondence with the position of the second image on the retina and marks out the field.

FOURTH DAY. TUESDAY, APRIL 24, F. MEYER, LISBON, PRESIDING.

10. WIECHERKIEWICZ: **Further experience in the use of pyoctanin in ophthalmic treatment** (author's abstract).

Wicherkiewicz has used pyoctanin in various forms of infectious corneal ulcers for several years, and has found its effect greatly increased by the use of dionin immediately after its application. Dionin renders the penetration of the pyoctanin into the tissue easier by the lymph stasis it occasions. He has found pyoctanin a very effective remedy, not only in corneal ulcers and infected wounds of the eye, but also in dacryocystitis, orbital phlegmons, and empyemas of the accessory sinuses. He first washes out the suppurating cavity with hydrogen peroxide until the injected fluid returns more or less clear. He obtained a brilliant result in a case of severe mucocele of the frontal sinus by aspiration of the contents of the sinus, followed by the injection of several drops of a ½ per cent. solution of pyoctanin. There was a perfect cure of the exophthalmos, the lateral deviation, the flattening of the eyeball, and the detachment of the retina within

fourteen days. On the same principle rests the bloodless treatment of various cysts, like those of Moll's glands.

DISCUSSION.

XAVIER DA COSTA (Lisbon) has used pyoctanin in trachomatous ulcers of the cornea, but has found the application very painful and has not obtained the desired results when no other treatment was employed.

CABANNES: Pyoctanin should not be used in acute dacryocystitis, because it is too irritating, but it might be useful in chronic cases if they could be observed long enough to determine the permanency of the results.

WICHERKIEWICZ said, in conclusion, that he did not use pyoctanin in acute dacryocystitis, but relied on antiphlogistic measures. He used it only in chronic cases, particularly of empyema and blennorrhœa of the lachrymal sac. He considered it better, from the standpoint of conservative surgery, than the destruction or extirpation of the sac. If it falls, then extirpation is indicated.

11. NEVES DA ROCHA: **Traumatic strabismus.**

12. M. MASCARO: **Education of the blind.**

13. M. FARINA: **Rapid treatment of syphilitic choroiditis and chorio-irido-cyclitis.**

14. M. SUAREZ DE MENDOZA (Paris): **Advantages of the corneal suture in cataract operations.**

Mendoza reported 215 cases of **corneal suture** with only two bad results. He is very much pleased with the results obtained.

15. F. OSTWALD (Paris): **Deep injections of cocainized alcohol in facial and other forms of neuralgia** (author's abstract).

Ostwald reported the results he had obtained from these injections in sixty cases of facial neuralgia, sciatica, neuralgia of the crural and ulnar nerves, of a nerve of the finger, of the cervical plexus, etc. Nine cases of facial hemispasm, which had lasted for years, were cured by injections of alcohol and stovain (80 per cent. with 0.01 stovain per dose) in the region of the stylo-mastoid foramen.

He demonstrated on a skull and with an anatomical preparation of a head how he made his injections at the exit of the three branches of the trigeminus from the base of the skull.

SYSTEMATIC REPORT ON THE PROGRESS OF OPHTHALMOLOGY IN THE SECOND QUARTER OF THE YEAR 1905.

By Dr. G. ABELSDORFF, in Berlin; Prof. ST. BERNHEIMER, in Innsbruck; Dr. O. BRECHT, Prof. R. GREFF, Prof. C. HORTSMANN, and Dr. R. SCHWEIGGER, in Berlin; with the Assistance of Prof. A. ALLING, New Haven; Prof. E. BERGER, Paris; Prof. CIRINCIONE, Genoa; Dr. DALÉN, Stockholm; Prof. HIRSCHMANN, Charcow; Dr. J. JITTA, Amsterdam; Mr. C. DEVEREUX MARSHALL, London; Dr. H. MEYER, Bradenburg; Dr. P. VON MITTELSTÄDT, Metz; Dr. H. SCHULZ, Berlin; Prof. DA GAMA PINTO, Lisbon; and others.

Translated by Dr. PERCY FRIDENBERG, New York.

Sections I.—III. Reviewed by PROF. C. HORSTMANN, Berlin.

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326. PAGENSTECHER, H. *Forty-Ninth Report of the Wiesbaden Eye Infirmary for the Poor.* Wiesbaden, 1905.

327. SNELLEN, H. *The Netherlands Eye Infirmary for the Poor.* Utrecht, 1905.

HIRSCHBERG (295, History of ophthalmology) deserves credit for being the first to give a complete survey of Arabic ophthalmology. The task was particularly difficult, as there were no printed documents as there are in the case of Greek authors, but only manuscripts in Arabic, Persian, and Hebrew, lying in forgotten corners of various libraries. These were found and collected by Hirschberg in Cairo, Constantinople, Florence, Parma, Paris, the Escurial, Leyden, Oxford, Munich, Tuebingen, Gotha, Dresden, and Berlin, and translated into German. Hirschberg shows what remarkable progress the Arabs had made in those days, and disproves the assertion of Hirsch that their science was based on that of the Greeks and contributed nothing to the progress of this branch of medicine. The Arabs actually fostered medical science in all parts of Islam at a time when there was much obscurity in the European Occident.

The work of HIRSCHBERG, LIPPERT, and MITTWOCH (296, The book of choice in eye-diseases, etc.) contains the German translation of a hitherto unknown manuscript, *The Choice of Eye-Diseases of Ammar B. Ali in Mosul*, dating from about 1000. Ammar was the most gifted and probably the most capable of Arabian eye-physicians. *The Book of the Satisfactory in Ophthalmology*, by Halifa B. Abil-Mahazin, was written not long after 1256. The manuscript is in Constantinople. The book entitled *Light of the Eyes*, by Salah Ad-Din, is one of the most comprehensive of Arabian works on diseases of the eye. The author is otherwise unknown. The work was probably written about 1296.

The work of HORSTMANN (298, History of ophthalmology) is essentially one for the general practitioner, giving a general sort of bird's-eye view of the History of Ophthalmology. Most of the data previous to the nineteenth century are taken from the excellent work of August Hirsch. The final section contains a review of the progress of ophthalmology in the latter half of the nineteenth century.

DU BOIS REYMOND (299, Contribution to the history of lenses) describes three antique window-glasses from the Antique Room of the Berlin Museum, which are thicker at the middle than at the margin, so that they are really convex lenses. As these pieces date from an early Roman period they show that at this

time they were able not only to manufacture glass but also to produce an optical effect. It is a question whether the latter was intentional.

FUKALA (300, Trachoma in Cicero, Pliny, and Horace) attempts to prove from the Latin classics that trachoma was widely spread among all classes of the Roman populace, and that Cicero, Horace, and the younger Pliny were affected with this disease.

WEGEHAUPT (301, In regard to the preceding article by Dr. Charles Fukala) shows that the above-mentioned conclusions of Fukala are without philologic basis, as the word "lippitudo" certainly did not mean trachoma.

According to MAGNUS (302, Were Cicero, Pliny, and Horace affected with trachoma?) there is no medical basis for the belief that Cicero, Horace, and Pliny were affected with trachoma, as the word "lippitudo" does not mean trachoma, but is used to indicate an affection of the eyes depending on a pathologic change in the fluid contents of the globe.

BERGER (305, On the influence of anomalies and diseases of the eye on the technique of painting) gives a broad sketch of the effect of anomalies and diseases of the eye on the products of the painter's art. He discusses anomalies of refraction, particularly astigmatism, which affected a number of painters, notably Turner, whose trees are all drawn out to an unnatural length. In many painters color perception was poorly developed, and senile changes in the lens also had an influence on the painter's manner. Loss of an eye caused a defective appreciation of relief, which is evident in the paintings of such artists.

SNELLEN, Jr. (306, Ophthalmic therapeutics), in his work discusses, first, antiseptics, and then astringents. To these he opposes the relaxants or irritants, the most important of which are calomel and the yellow precipitate of mercury. The principal anæsthetic and analgesic is cocain, for which holocain, eucain, tropo-cocain, and arcoin may serve as succedanea. Atropin is the most important mydriatic; the alkaloids of the calabar bean, eserin and physostigmin, the best myotics.

The first half of the fourth volume of NAGEL (307, Textbook of human physiology) contains a treatise by A. Tschermak, on the physiology of the brain. Special chapters are devoted to the visual disturbances following lesions of the parieto-

occipital lobe, the visual sphere, and the sigmoid gyrus. Under localization of the sensory and motor functions, we find the representation of the eye muscles and the visual sphere, the localization of visual concepts, and psychical blindness.

O. Langendorff presents the physiology of the spinal cord and medulla, considering, in its relation to the various organs, the secretion of tears and the centres for lid-closure and pupillary action. In P. Schulz's chapter on the sympathetic system, the relation of the cervical sympathetic to the eye is considered.

The handbook of ophthalmology of MANSILLA (308, Elementary treatise on ophthalmology), Professor in the Medical Faculty of Madrid, will be greeted with pleasure as evidence that his subject is being taught in Spain in a way befitting the modern standard. The general plan of the work is rather unusual, as he first treats of the anatomy of the eye and its adnexa, then of physiology, physiologic optics, examination of the patient, and determination of refraction. We then come to the clinical part: Diseases of the lids, conjunctiva, lachrymal apparatus, muscles, orbit, and finally those of the globe, cornea, sclera, etc. In each section the operations are detailed, with indications and technique. German ophthalmology has been thoroughly studied by the author. In discussing glaucoma and sympathetic affections of the eye, the various theories are considered without a final decision for any one view. The book contains reports of a number of rare cases seen by the author, as a case of anophthalmus, with autopsy. The numerous illustrations, most of them well reproduced, are worthy of notice.

BERGER.

Volume IV. of the *French Encyclopædia of Ophthalmology* edited by LAGRANGE and VALUDE (309) contains the following articles:

Emile Berger treats of the relations of eye-diseases to systemic affections, a subject which he has already discussed in a large work. The present treatise is more succinct, and follows rather closely the views held by French clinicians. Diseases of metabolism, for instance, are considered, with Bouchard, as due to "*Ralentissement de la nutrition*," and much more stress is laid on auto-intoxication than is the custom, say, in Germany, although the author takes pains to present both sides of the question where the views of authors in these two countries are at variance. Diseases of the nervous system and those of infectious nature in

their relation to ocular affections are considered at length. Among the more recent observations we may mention those on disturbances of reading in tabes and of relief-perception in hysteria.

Morax. Examination of the patient. Symptomatology of eye-disease. The work of this author on the same subject, in co-operation with Brun, has already been reviewed in these ARCHIVES.

Rohmer, General diseases of the eye. The title of this section does not correspond to the contents, which treats in detail of injuries of the eye. Etiology, symptomatology, diagnosis, prognosis, prophylaxis, and treatment of traumatic affections are discussed in their general bearings. Special chapters are then devoted to foreign bodies, changes of position of the globe in consequence of mechanical violence, dislocation, avulsion of the globe, exophthalmus. This is followed by a chapter on injuries by blunt force, concussion and contusion of the globe, incised and contused wounds, and so on. The following section is devoted to burns by chemical and thermic agents and to electrical injuries. Particular attention is paid in the last chapter to the injuries of the eye in war. The history of this important topic is presented in full, and a tribute paid to Percy and the elder Larrey. We then come to the work of Bertheraud (1850) and the experiences of the Crimean campaign of Chenu (1869), who also collated the statistics of the Franco-Prussian war. The reports of the German Sanitary Commission are drawn upon largely for material as to injuries of the eye. Among other works dealing with this subject we may mention Legoucet (1872), Neudoerfer (1872), Chauvel and Nemier (1890), and Delorme (1893). Rohmer's remarks on sympathetic ophthalmia, hemianopsia, and operative procedures in military ophthalmology will be read with particular interest. The author's command of the literature of the subject, especially that of German authors, is worthy of great praise.

BERGER.

COHN (310, Recollections of observations on school hygiene) reports his investigations, carried out in collaboration with Mikulicz, on vertical writing and its influence on posture. He concludes that the carriage of the body and attitude during writing are markedly affected by the factor mentioned.

REICHENBACH (312, The question of measurement of day-

light) claims that an accurate determination of the angle of latitude is not of paramount importance in the measurement of the illumination of interiors. It is generally sufficient to determine the angle of aperture and elevation with Gotschlich's mirror instead of the complicated measurement of the spatial angle mentioned above.

SPEIDEL (313, The eyes of theological students in Tuebingen) examined, in all, 566 students and 1132 eyes. Of these 310 were Catholics and 256 Protestants (Lutherans). Among the former there were 373 myopes and 83 hypermetropes; among the latter, 330 myopes and 72 hypermetropes. The lowest degrees of myopia are most common; middling degrees less common, and myopia above 10 D. quite exceptional. Of a total of 702 myopic eyes, 521, *i. e.*, 72 %, had a crescent, which was rarely missing in myopia of 9 D. and over. Absence of the crescent was noted generally in low degrees of myopia and in these cases vision was comparatively most acute. The myopia was complicated in 140 cases. In 141, *i. e.*, 37 %, of the cases, either the father or mother or both were myopic. There were no striking differences of cranial configuration to be noted as between emmetropes, myopes, and hypermetropes, and similarly there was no evident relation between the refraction and complexion (coloring) of the eyes.

AUGSTEIN (316, Practical examinations in color blindness to determine fitness for railway service) recommends the use of the tissue-paper contrast with Cohn's tables, to be followed by the tests of Holmgren, Stilling, and Nagel, in the examination of railway employees.

The work of BEYKOVSKY (317, Determination of vision and refraction for military surgeons) gives a short compend of the examination of the eye, paying particular attention to the subject of simulation and its detection which is of special importance for the military surgeon.

RUEHLMANN (318, The causes of blindness) considers as blind those whose vision has sunk to the counting of fingers at one half of one meter, at most. His cases, collected from the university eye-clinic, the polyclinic, and various institutions for the blind in Halle, were 265 bilateral, and 1032 unilateral blind. The cause of blindness was: disease of the cornea, 209; optic nerve atrophy, 117; iridocyclitis, 62; glaucoma, 67; cataract, 64; injury, 396;

gonorrhœal ophthalmia, 152; infectious disease, 40; detachment of the retina, 47.

SALZER (319, What is to be taught by the last Bavarian statistics of blindness?) calls attention to the statistics of blindness based on the last Bavarian census of 1900. Of all cases of blindness, 8 % were due to gonorrhœal ophthalmia, about 13 % to injuries, 1 % to measles, and 0.65 % to small-pox.

KORTE (320, On damages for accidental injuries of the eye in the building trades) claims that loss of one eye does not, as a general thing, incapacitate for work in the building trades. Many laborers will, however, take a long time to accustom themselves to the new order of things, and others, like the roofers, will not dare to pursue their hazardous calling on account of the feeling of insecurity. Loss of one eye should always entitle to a permanent annuity, as these workmen, in spite of their skill and usefulness, are hampered by difficulty in getting employment. Those who have an approximately normal eye on one side and are aphakial on the other are able to fill their places in the building trades.

LANDOLT (321, Uniformity in determination of visual acuteness) recommends, as test-objects for the determination of vision, interrupted lines in the form of a C, bent in a circle.

The article of TRUC (324, The ophthalmic clinic in Upsala) contains a detailed account of the Montpellier clinic which was founded in 1887, and has supplied material for a series of excellent scientific publications by Truc, his assistants, and pupils. The number of out-patients, was 24,160; of in-patients, 4894; 4453 operations, including 1528 for cataract were performed. Wax specimens are largely used for demonstration in teaching anatomy, embryology, and pathology of the eye (Tramont et Jumelin, Paris). In the historical introduction, Truc gives an interesting account of the first chair of ophthalmology established in France, which was founded at Montpellier in 1788, but abandoned in 1792, as the medical faculty of Montpellier was closed during the Revolution. When it was re-established in 1794, the former professor of ophthalmology, Seneau, was appointed to the chair of midwifery, but there was no special teacher for ophthalmology.

BERGER.

In the Wiesbaden Eye Infirmary, PAGENSTECHER (326, Forty-ninth report of the Wiesbaden eye infirmary for the poor) treated

3077 cases in 1904. There were 89 cataract extractions, all successful but one ; 45 squint operations, and 22 iridectomies.

In the Utrecht Eye Hospital (327, The Netherlands eye infirmary for the poor), 7289 cases of eye disease were treated and 63 extractions for cataract performed during the year 1904.

II.—GENERAL PATHOLOGY, DIAGNOSIS, AND THERAPEUTICS.

328. COSMETTATOS. **The eye of anencephalics.** *Arch. d'opht.*, xxv., p. 362.

329. SCHIECK, FR. **As to the iron-reaction in melano-sarcoma of the choroid.** *Beitr. (Ziegler's)., z. Path-Anat.*, 7th Suppl., p. 199.

330. SCHEIN, ALBERT. **On excessive pigmentation in the human eye.** *Beitrz. Augenh.*, vol. 64, p. 75.

331. BIRNBACHER, A. **On the causes of increased tension in intra-ocular tumor-formation.** *Festschr. f. J. Hirschberg*, Leipsic, 1905.

332. PURTSCHER, P. **On the prognosis in injuries of the eye by blunt force, especially by horn-thrust.** *Ibid.*

333. WOLFF, B. **Eye injuries during birth.** *Ibid.*

334. SCHULZE, WALTER. **Experimental inoculation of rabbits' eyes with cytorrhyctes luis.** *Med. Klinik*, 1905, No. 19.

335. SCHULZE, WALTER. **Inoculation of rabbits' eyes with syphilitic virus.** *Klin. Monatsbl. f. Augenh.*, xlii., 2, p. 253.

336. BUCHANAN, LESLIE. **Mycoses, with special reference to mycosis of the eyeball.** *Glasgow Med. Journal*, 1904.

337. POLATTI. **Experimental studies on panophthalmitis due to the bacillus subtilis.** *Annal. di Ottalm.*, 1905, ii., 1–2.

338. HOERING, FELIX. **Notes on the relation of systemic disease to affections of the eye.** *In. Diss.*, Berlin, 1905.

339. HILBERT, R. **On the subjective perception of colored spots in the visual field as a pathologic and physiologic occurrence.** *Klin. Monatsbl. f. Augenh.*, xliii., 1, p. 751.

340. FLEISCHER, BRUNO. **Bell's pheno menon.** *Arch. f. Augenh.*, lii., p. 359.

341. ROTHHOLZ. **Scrofulous ophthalmia.** *Ther. Monatsbl.*, Aug., 1905.

342. GALEZOWSKI, JEAN. **The fundus oculi in affections of the nervous system.** Paris, 1904.

343. GROYER, FRIEDRICH. **Eye disease and gastro-intestinal auto-intoxication.** *Muench. med. Wochenschr.*, 1905, No. 39.

344. BEST. **Local anæsthesia in ophthalmic therapy.** *Vossius's Sammlung*, vol. vi., No. 3, 1905.

345. GUTTMANN, J. **Report of a new method of applying local anæsthesia in operations on the globe and lids, with special reference to operations for trachoma.** *Arch. f. Augenh.*, lii., p. 301.

346. URATA, TADA. **Experimental investigations as to the value of the Credé drops.** *Zeitschr. f. Augenh.*, xiii., 3, p. 42, and 4, p. 335.

347. ROEMER, P. **The serum-therapy of serpent ulcer. The combination of active and passive pneumococcus-immunization.** *Arch. f. Augenh.*, lii., p. 1.

348. YVERT, A. **Trepanation and cerebral puncture in disease of the brain.** *Rec. d'opht.*, xxvii., p. 193.

349. CAILLAUD. **Intramuscular injections of Grey oil in ocular disease.** *Thèse*, Paris, 1905.

350. SCHWARTZ. **Cure of a case of ocular tuberculosis with Marmorek's serum.** *Deutsche med. Wochensch.*, 1905, No. 34.

351. DIEHL, OTTO. **Further experiences with the intraocular administration of iodoform.** *Inn. Diss.*, Glessen, 1905.

352. SCHIRMER. **Treatment of infected perforating suppurations of the eye.** *Muench. med. Wochensch.*, 1905, p. 1172.

353. SILEX, P. **Treatment of infected wounds of the globe.** *Aerztl., Sach-vers. Zeitg.*, 1905, No. 1.

354. HIRSCHBERG, J. **The prevention of suppuration of the globe from scars of incisions.** *Centralbl. f. prakt. Augenh.*, xxix., p. 193.

355. KOEHLER. **The action of newer disinfectants, particularly oxycyanate of mercury, on infected instruments.** *Zeitschr. f. Augenh.*, xii., p. 542.

356. HOTTA. **Experimental investigations on the infection of corneal wounds by saliva.** *Klin. Monatsbl. f. Augenh.*, xlii., 2, p. 237.

357. GRUBE. **Comparative iuvestigations on the action of atropin, homatropin, and eumydrin on the eye.** *In. Diss.*, Goettingen, 1905.

358. BORNEMANN. **Blindness following injection of atoxilin for lichen ruber.** *Muench. med. Wochenschr.*, 1905, I, p. 1047.

359. BECK. **Subconjunctival salt injections.** *Arch. f. Augenh.*, lii., p. 337.

360. BIRCH-HIRSCHFELD and NOBUO INOUYE. **Experimental studies on the pathogenesis of thyroidin-amblyopia.** *v. Graefe's Arch.*, lxi., 3, p. 499.

361. WEINHOLD, M. **Clinical statistics of 1122 enucleations.** *In. Diss.*, Tuebingen, 1905.

362. TERRIEN, F. **Conjunctival autoplasty and prothesis.** *Soc d'opht. de Paris*, March, 1905.

363. BIETTI, A. **Experimental investigations on the regeneration of the optic nerve after optico-ciliary resection.** *Ann. di Ottalm.*, 1905, 3–4.

364. BOLOGNESI, S. **The injection of melted paraffin into the tissues of the eye.** *Ann. di Ottalm.*, 1905, 1–2.

365. HAAB, O. **On the correct use of the giant magnet.** *Ophthalmoscope*, Feb., 1905.

366. HELBRON, J. **Kroenlein's operation.** Berlin, 1905.

367. MAYEDA. **The effect of corneal tattooing on sight.** *Beitr. z. Augenh.*, vol. lxiv., p. 59.

368. BORSCHKE, ALFRED. **The theory of skiascopy.** *Arch. f. Augenh.*, lii., p. 161.

369. NEUSTAETTER. **On two new methods for determining the refraction.** *Muench. med. Wochensch.*, 1905, p. 1365.

370. HEIMBOLD. **The determination of refraction.** *Deutsche. med. Wochenschr.*, 1905, p. 1331.

371. LOHNSTEIN. **On a modification of the reversed image and its application to determination of refraction.** *Zeitschr. f. Augenh.*, xiv., 2, 148.

372. JENSEN, EDMOND. **Transillumination of the sclera.** *Hospitalstid.*, 1905, p. 477.

373. WOLFRUM. **Celloidin dry method.** *Klin. Monatsbl. f. Augenh.*, xviii., p. 61.

SCHIECK'S (329, As to the iron-reaction in melano-sarcoma of the choroid) investigations go to show that the frequently noted iron-reaction in the pigment of melano-sarcoma of the uveal tract cannot be considered as proof of a hæmatogenous origin, as it depends on a degeneration of the chromatophores or on the transportation of pigment-cells. A disseminated iron-reaction can accordingly be considered no more characteristic of hæmatogenous pigmentation than the form and color of the pigment, the arrangement of the pigment-cells around the vessels, and the irregular distribution of the pigment-cells in the tumor.

SCHEIN (330, On excessive pigmentation in the human eye) reports *3 cases* of *anomalous pigmentation* of the *sclera*, *iris*, *conjunctiva*, and *choroid*, and one of conjunctival pigmentation. In the latter case, a triangular, raised pigment-patch was seen, 3*mm* below the limbus, and composed of black spots, some of which were confluent.

BIRNBACHER (331, On the causes of increased tension in intra-ocular tumor-formation) examined *8 cases* of *intraocular tumor-formation* in an early stage, but with evident *increase of tension*. In 7 cases the iris-angle was narrowed or occluded; in one case the lumen of a vorticose vein was completely plugged with tumor-cells. Thus there are various causes for plus tension in these cases. Obstructions in the lymph-channels or the efferent blood-vessels may be a factor, which is generally due to changes at the iris-angle or to obstruction of the efferent vein by tumor-masses.

PURTSCHER (332, On the prognosis in injuries of the eye by blunt force, especially by horn-thrust) observed 74 cases of eye injuries by blunt violence. Of these, 26 were ruptures of the sclera by thrust with a cow's horn, 36 of the same lesion due to other causes, 12 in which the thrust of the cow's horn had produced extensive injury without bursting the sclera. In almost two-thirds of the cases useful vision was obtained, and in 11 cases enucleation was performed. Sympathetic ophthalmia did not occur. Purtscher advises immediate enucleation in extensive crushing of the globe, but this procedure may be postponed in case of open scleral rupture without extensive loss of vitreous.

WOLFF (333, Eye injuries during birth) reports 4 cases of eye injuries in new-born children, observed in a series of 581

confinements in narrowed pelves. A review of the literature of this subject is also given. The least serious accidents are retinal hemorrhages due to asphyxiation. As birth-injuries in a narrower sense we have fractures of the orbital wall, injuries of the neighboring soft parts, protrusion and avulsion of the globe, exophthalmus, ocular paralysis, contusion of the globe, corneal opacity, hemorrhage into the anterior chamber, rupture of the choroid, optic nerve atrophy, infantile glaucoma, traumatic cataract, panophthalmitis, phthisis bulbi, and microphthalmus. The eye injuries were rarely seen in cases of after-coming head, but were most frequent in forceps cases in narrow pelves.

SCHULZE (335, Inoculation of rabbits' eyes with syphilitic virus) experimented on rabbits by opening the anterior chamber, wounding the iris with the point of a lance-knife, and inoculating the wound with syphilitic virus. This consisted of matter from a chancre emulsified with glycerin and water and rubbed in with a narrow spatula. Kidney tissue of one of the inoculated rabbits, containing cytorrhyctes luis, was then introduced into the eye of another, *i. e.*, from one animal to the other. Finally an animal was inoculated with the blood of a human being in the florid stage of syphilis. After the primary injection caused by the operation had subsided, a second reaction was noted within three or four days, more marked in the vicinity of the point of inoculation. The cornea became cloudy, and there was a localized opacity of the iris. The injection then paled again, while the corneal opacity became circumscribed, remaining to a certain degree. The iris soon showed a discoloration and diffuse thickening at the point of inoculation. The general reaction of the globe gradually became less, and the disease became localized in the form of a yellowish-gray discoloration at the point of inoculation. Multiple nodules were frequently seen. Microscopic examination invariably showed cytorrhyctes luis in the iris.

In a study of moulds and their action on the eye, BUCHANAN (336, Mycoses, with special reference to mycosis of the eyeball) found 21 cases reported in literature, 14 in Germany, 2 in Scotland, 2 in North America, 1 each in Russia, France, and Italy. Only a few moulds are pathogenic for the human eye. These are aspergillus fumigatus, nigricans, flavescens, and glaucus, and penicillium glaucum. The first is the most common. The cornea is most frequently the seat of disease, although hyphomycetæ may occasionally reach the interior of the eye. The

infection generally appears in the form of hypopyon keratitis ; the margin of the ulcer is sharply defined, and slightly raised above the level of the neighboring cornea. The latter is cloudy and gray, and may remain so for weeks or months. Hypopyon is almost invariably present. Pain is a noticeable feature, but there is little tendency to spread. The best treatment is the destruction of the affected part. Cultures will grow on any medium at a temperature of 37. 5 C. The specimens are best stained with Ehrlich's hæmatoxylin.

Polatti (337, Experimental studies on panophthalmitis due to the bacillus subtilis) inoculated the anterior chamber and vitreous of rabbits with pure cultures of the bacillus subtilis and with earth and other foreign matter infected with this micro-organism. He concludes that there is no doubt as to the pathogenic action of the bacillus subtilis which may enter the vitreous, and there finds an excellent culture medium. As this germ is extremely widespread in nature, we must be prepared to find a specific panophthalmia due to its agency in a large number of cases. Cirincione.

Hoering (338, Notes on the relation of systemic disease to affections of the eye) gives a short sketch of the relation of systemic diseases to affections of the eye, without presenting anything strikingly new.

Hilbert (339, On the subjective perception of colored spots in the visual field as a pathological and physiological occurrence) makes a distinction between pathological sensations of color of a subjective nature which occupy the entire field of vision, and those in which the color is perceived in the form of more or less sharply circumscribed spots. Hilbert observed two cases of the latter form. In the case of a girl of sixteen, after influenza, there appeared before the right eye a bluish-green spot which disappeared after eight or ten days. A man of fifty-three had occasional sensations of a brown spot in front of the left eye, which came and went. The author has no explanation to offer for this phenomenon.

Rothholz (341, Scrofulous ophthalmia) is of the opinion that a series of eye diseases which have been called scrofulous are to be considered as tuberculous. On the other hand, many characteristic symptoms of scrofula are the results of suppuration in the nasal and accessory cavities. The latter should always be borne in mind in the treatment of so-called scrofulous eye-disease.

JEAN GALEZOWSKI's (342, The fundus oculi in affections of the nervous system) work on the fundus oculi in diseases of the central nervous system is based on material from his father's clinic and that of Professor Raymond (Salpétrière). The clinical symptoms are discussed with the ophthalmoscopic finding. The literature on the subject is very completely presented.

In regard to tabes, Galezowski agrees with his father that mercurial treatment is of value in the accompanying optic-nerve atrophy, and that syphilis plays the most important ætiologic rôle. Of sixty-four cases of atrophy in tabics, a history of preceding syphilis was obtained in forty-nine. Separate chapters are devoted to the affections of the optic nerve in multiple sclerosis, acute myelitis, and progressive paralysis. These are followed by a discussion of the eye-ground in softening of the brain, tumor, tuberculous meningitis, and cerebro-spinal meningitis. Finally, the general neuroses are considered, which, as is well known, show no changes in the fundus. In one case, however, Galezowski observed bilateral pallor of the nerve-head in hysteria, an exceedingly rare occurrence, of which, so far, only two instances have been reported, one by Leber, and the other by Galezowski (senior) from Charcot's clinic. The most important fundus-changes are shown in fourteen colored plates.

BERGER.

GROVER (343, Eye-disease and gastro-intestinal auto-intoxication) believes that many cases of eye-disease in which there is no apparent cause to be determined from the previous history are due to disorders of digestion. He was able to find indican in the urine with few exceptions. As this reaction is only present when there are processes of decomposition in the intestine, Groyer concludes that in the digestive tract of these patients toxic substances form which may cause disease of various organs of the body, notably of the eye.

According to BEST (344, Local anæsthesia in ophthalmic therapy), the instillation of the usual anæsthetics into the eye is entirely harmless as far as any danger of systemic intoxication is concerned. Corneal opacity is only to be feared when unusually large quantities have been employed. Cocaine, particularly in combination with adrenalin, is by far the best local anæsthetic.

After instillation of a 4 % solution of cocaine, GUTTMANN (345, Report of a new method of applying anæsthesia in opera-

tions on the globe, and lids, with special reference to operations for trachoma) washes the skin of the lids with water and soap. He then injects a solution of sodium chloride 0.2, cocaine muriate 0.05, to water 100, into the subconjunctival tissue near the edge of the upper cartilage.

URATA (346, Experimental investigation as to the value of the Credé drops) finds the bactericidal action of 1 % silver acetate weaker than that of 1 % silver nitrate. The irritation is about the same in both. Silver nitrate works most energetically on staphylococci, less so on streptococci, pneumococci, and gonococci.

The specific treatment of serpent ulcer, instituted by ROEMER (347, The serum-therapy of serpent ulcer. The combination of active and passive pneumococcus-immunization) is still being developed, and is far from complete. The first stage of the serum-therapy was occupied with clinical experiments to determine whether the use of the serum alone was sufficient for a cure. As this was found not to be the case, Roemer determined to use the combined method with active immunization. Numerous experiments on animals were made to determine the time in which the organism reacts to dead cultures of pneumococcus by the production of specific alexins. As the bactericidal action of pneumococcus serum cannot be accurately determined, Roemer made use of the agglutination phenomenon, which is much more easily demontrated, to find the rapidity of production of the antibodies. After forty-eight hours, specific agglutinins have already been formed. The pneumococcus antibodies are formed in the internal blood-forming organs. The results of these investigations, from the standpoint of Ehrlich's side-chain theory, leads us to hope for practical results in active immunization after infection with pneumococcus. This procedure is the more important as the immunizing serum, as shown by Roemer, is eliminated from the body, to a great extent, in the course of a few hours. It is shown that the dead cultures of pneumococcus are absolutely harmless. The first practical experiments on the basis of these data were made with material from the Wuerzburg clinic. In a series of cases there was undoubtedly some effect of the serum-therapy.

SCHWARTZ (350, Cure of a case of ocular tuberculosis with Marmorek's serum) describes a case of tuberculous inflammation

of the conjunctiva in a girl of sixteen, which looked exactly like granular conjunctivitis. The bacteriological ætiology was confirmed by microscopic examination of excised tissue and inoculation tests. Marmorek's serum was then injected under the skin of the abdomen, *276ccm* being given altogether. Complete cure then followed.

Diehl (351, Further experiences with the intraocular administration of iodoform) reports 14 cases of intraocular administration of iodoform. Of these 11 were serpent ulcers, 9 injuries, 3 perforating wounds, and in 2 there was no evident external cause. The results were good except in the two cases of perforative injury, in which the eye had to be enucleated. The introduction of iodoform into the anterior chamber gives uniformly good results, but as to its use in the vitreous the question has not been decided.

In corneal abscess following injury, Silex (353, Treatment of infected wounds of the globe) first pays attention to the lachrymal sac, which is promptly extirpated if dacryocystitis is present. In case of beginning sepsis after scleral perforation, the actual cautery is carried deep into the vitreous, in order, if possible, to destroy the infiltrated tract. Perforating corneal wounds, with iris prolapse and injury of the lens, are treated by excision of the prolapse, evacuation of lens-masses, and cauterization of the wound edges in certain cases. In addition, subconjunctival injections of bichloride or oxycyanate of mercury are recommended.

Hirschberg (354, The prevention of suppuration of the globe from scars of incisions) reports two cases of intraocular suppuration from infection of the corneal section after scar had formed. Cauterization with an incandescent platinum point checked the process.

Koehler (355, The action of newer disinfectants, particularly oxycyanate of mercury, on infected instruments) recommends oxycyanate of mercury for the cleansing and disinfection of contaminated instruments.

Hotta (356, Experimental investigations on the infection of corneal wounds by saliva) experimented on rabbits, cats, and mice, producing artificial injuries in the form of erosions, pockets, and penetrating wounds. Saliva taken from individuals of different ages and social standing was then rubbed into the wound with a

spatula. In thirty cases of perforating wound the result was negative; positive but once in thirty erosions, and uniformly positive in wounds with pockets.

GRUBE (357, Comparative investigations on the action of atropin, homatropin, and eumydrin on the eye) found that the pupil dilated ½*mm* in 6 minutes, on an average, after homatropin; in 10 minutes, after atropin and eumydrin 5%, and in 12½ minutes after 1% eumydrin. The increase to maximum dilatation took place most rapidly after 5% eumydrin, in 28 minutes, average time; almost as quickly after atropin, and in 31 minutes after homatropin, and in 51 minutes after 1% eumydrin. Complete mydriasis lasted longest with atropin, 26 hours, average time; 16 to 20 hours after eumydrin, 5%; 17½ hours with 1% eumydrin, and 3 to 4 hours after homatropin. The action of atropin lasted 5–7 days; that of 5% eumydrin, 78 hours; of 1% eumydrin, 60 hours; of homatropin, 26 hours. Accommodation was completely paralyzed in every case by atropin and 5% eumydrin, but in only a few by 1% eumydrin and homatropin.

BORNEMANN (358, Blindness following injection of atoxilin for lichen ruber) observed marked weakness of sight after injections of 20% solutions of atoxilin for lichen ruber. There was concentric contraction of the visual field, and pallor of the temporal half of the nerve-head. This gradually went on to white atrophy and complete loss of sight.

BECK (359, Subconjunctival salt injections) reports 34 cases in which he made subconjunctival injections of salt-solution varying in strength from 1% to 10%. In 8 cases of vitreous-opacity, 7 showed improvement; of 14 cases of central choroiditis, 10 were improved and but 1 got worse; of 12 cases of detachment of the retina, 6 were benefited.

The investigations of BIRCH-HIRSCHFELD and INOUYE (360, Experimental studies on the pathogenesis of thyroidin-amblyopia) show that progressive feeding of dogs with thyroidin, beginning with small doses and gradually increasing to 8–10*gm* per diem, causes symptoms of optic nerve atrophy. This develops in the course of several months, and is not preceded by any evidence of vascular changes in the retina or disc. Histologic examination showed chromatolysis of the ganglion cells of the retina, shrinkage of the nucleus, and disintegration of the cell.

There was no evident predisposition as to location of these changes in any particular region of the retina. Comparatively well-preserved ganglion cells were always found next to those which had degenerated. The nerve presented a picture of partial diffuse degeneration of the fibres, becoming less marked centripetally, without changes in the glia, connective-tissue, septa, or vessels. Thyroidin-amblyopia in man is closely allied clinically to chronic alcohol-tobacco amblyopia, according to the reports of Coppez and Aalberstberg. It is not a result of interstitial neuritis, but due to primary lesion of the ganglion cells and secondary degeneration of the nerve.

WEINHARDT (361, Clinical statistics of 1122 enucleations) finds records of 1122 enucleations performed at the Tuebingen University eye-clinic from its foundation until 1904. The operation was indicated by malignant new growths in 84 cases; papilloma corneæ, 1 case; angioma of the choroid and cysticercus, each 1 case; hydrophthalmus, 20 cases; absolute glaucoma, 86 cases; intraocular hemorrhage, 6 cases; injuries, 671 cases; panophthalmitis, 6; secondary glaucoma, 65; iridocyclitis, 61; staphyloma, 67; phthisis bulbi, 48; exophthalmic goitre, 2; lagophthalmus, 1; and keratomalacia, 2 cases.

Regeneration of the ciliary nerves may occur, according to BIETTI (363, Experimental investigations on the regeneration of the optic nerve after optico-ciliary resection), after optico-ciliary resection. It may be partial or complete, and is occasionally wanting. The nerve may be regenerated in its entire length after being cut off. The ciliary ganglion was invariably preserved, with slight changes or none. CIRINCIONE.

BOLOGNESI (364, The injection of melted paraffin into the tissues of the eye) was unable to find any phagocytic action by the organism on paraffin which had been introduced into the tissues of the eye or any local chemical action of the paraffin. There was no embolic action, and the effect was due essentially to local mechanical action on the elements with which the paraffin came in contact. CIRINCIONE.

HAAB (365, On the correct use of the giant magnet) discusses the most appropriate methods of removing metallic foreign bodies from the eye, and gives a detailed description of his giant magnet. He considers it important for the operator to be

able to make and break the current instantly by pressure on a pedal. A stationary magnet is to be preferred, as it is manifestly easier to move the head and eye of the patient than a mass of metal weighing upwards of 200 pounds. Great caution should be exercised to avoid drawing the foreign body into the ciliary region. Dilatation of the pupil facilitates drawing a small foreign body out into the anterior chamber. If the patient's head be brought into the right position it is often possible to bring the foreign body free into the anterior chamber. It can then be extracted through a small incision by means of the small magnet, or, as Haab prefers, with his own. Iridectomy should be avoided, if possible; Haab has never found it necessary. In case the eye is very much irritated, a small rod of iodoform is introduced into the anterior chamber. To avoid injury of the vitreous, he advises removal of the foreign body through the anterior chamber, instead of making a fresh opening in the sclera and so causing complications. In case extraction has failed with the giant magnet, it is useless to attempt it with the small magnet, especially when the location of the foreign body is in doubt. DEVEREUX MARSHALL.

According to HELBRON (366, Kroenlein's operation), the preservation of the globe, whether blind or still capable of seeing, in case of retro-ocular disease, is permissible only when this is consistent with the removal of the focus of disease. In decidedly malignant tumors, especially in early life, prompt exenteration is the surest safeguard against recurrence. In case the disease focus is far forward and well defined, simple extirpation from in front is to be preferred to the temporary resection of the outer orbital wall as the simpler procedure. Kroenlein's operation itself is a technically simple procedure, devoid of danger, which permits of the preservation of the eye and generally of vision, but which often leaves more or less marked muscular disturbance behind. It is indicated in all deep-seated affections of the orbit which are not of markedly malignant character, especially when located in the temporal half, while those toward the nasal half are not usually exposed sufficiently. According to previous experience, the operation is indicated in cysts, cavernoma, large tumors of the lachrymal gland, solid orbital tumors of slow growth, all tumors of the optic nerve and sheaths, foreign bodies of the orbit, disturbances of circulation, deep-seated disease of the orbital wall, and, finally, for diagnostic purposes.

MAYEDA (367, The effect of corneal tattooing on sight) shows that tattooing of the cornea is quite free from danger when done under rigorous asepsis, and can then be used on perfectly sound eyes. If the natural pupil remains free, better vision is obtained than with iridectomy. Tattooing not only improves the appearance of the patient, but vision as well.

NEUSTAETTER (369, On two new methods for determining the refraction) discusses Holth's kinescopy and Lohnstein's kinematoscopy.

LOHNSTEIN (371, On a modification of the reversed image and its application to determination of refraction) demonstrates that the inverted image can be very simply modified so that it appears in the same magnification as the upright image, and, again, can be used similarly for the determination of refraction with the ophthalmoscope.

WOLFRUM (373, Celloidin dry method) advises fixing specimens in Zenker's solution, hardening in alcohol of increasing strength, and embedding in water-free but thin celloidin which is gradually allowed to thicken. When the mass has the consistency of jelly, it is put in a dish with a small quantity of chloroform, which causes rapid hardening. The specimen is then ready for the microtome.

III.—MEDICAMENTS AND INSTRUMENTS

374. KOBERT. **Two alkaloids of interest to the oculist—physostigmin and scopolamin.** *Muench. med. Wochenschr.*, 1905, p. 147.

375. NARA. **On scopolamin and its by-affects.** *In. Diss.*, Rostock. 1905.

376. HOESSLE. **Novargan.** *Deutsche. med. Zeitg.*, Jan., 1905.

377. WOTKRESENSKI. **Stovain.** *Fortschr. d. med.*, 1905,, No. 7.

378. SCRINI. **Stovaine.** *Arch. d'opht.*, xxv., p. 353.

379. BOUCHARD. **Accidents due to adrenalin.** *Rec. d'opht.*, xxvii., p. 30.

380. GEBB, HEINRICH. **Alypin, a new anæsthetic.** *In. Diss.*, Giessen, 1905.

381. v. SICHERER. **Alypin, a new anæsthetic,** *Ophthalm. Klinik*, 1905. No. 16.

382. JACOBSOHN, LEO. **Alypin, a new succedaneum for cocaine.** *Wochenschr. f. Hyg. u. Ther. d. Aug.*, 1905, No. 52.

383. HIRD, BEATSTON. **Ethyl-chlorid in eye-surgery; with an account of a fatality.** *Ophthalmoscope*, 1905, March.

384. COULOMB. **Artificial eyes.** *Thèse*, Paris, 1905.

385. ULBRICH, H. **Is Mueller's interval-prothesis free from danger?** *Ophthal. Klinik*, 1905, No. 15.

386. OPPENHEIM. **Black bandages.** *Deutsche med. Wochenschr.*, 1905, p. 468.

387. WOLFBERG. **Improved protective glasses for ambulant treatment.** *Wochensch. f. Hyg. u. Ther. d. Aug.*, 1905, p. 244.

388. KAUFFMANN. **Black eye-bandages.** *Ibid.*, 1905, No. 42.

389. BJERKE, K. **On the use of photographically diminished Reading tests for the determination of near vision.** *v. Graefe's Arch.*, lx., 2. 369.

390. LUNDBERG, V. **Swedish test-types.** Stockholm, 1905.

391. ZION. **Hebrew test-types according to Snellen's formula, $V=\frac{d}{D}$.** *Wochenschr. f. Hyg. u. Ther. d. Aug.*, 1905, p. 97.

392. BOUCHARD. **Test case for the determination of vision in simulants.** *Soc. d'opht. de Paris*, 1905, Mars 19.

393. POLACK. **Optotypes in complementary colors.** *Rev. génér. d'opht.*, xxiv., 1906.

394. ERDMANN. **Use of blue glasses in examinations by artificial light. Description of a simple apparatus for the testing of color-perception.** *Muench. med. Wochensch.*, 1905, p. 161.

395. HEIMANN. **On some new apparatus for determining the illumination of work-rooms.** *In. Diss.*, Kiel. 1905.

396. WERNICKE. **Peculiar self-correction of one-sided myopic astigmatism.** *Deutsche militaerertl. Zeitsch.*, 1905, No. 5.

397. ASK. FR. **The astigmatoscope, a decided improvement on Placido's disc with a plate.** *Tidskr. i. mil. Halsovard*, 1905, No. 30.

398. OPPENHEIMER, **Recent improvements in bi-focal glasses.** *Klin. Monatsb. f. Augenh.*, xlii., 2, p. 45.

399. KOERBER. **A double lens.** *Centralb. f. prakt. Augenh.*, xxix., p. 247.

400. BERGER, E. **The use of the binocular loupe in ophthalmic surgery.** *Rev. génér. d'opht.* xxiv., p. 243.

401. SCHIOETZ, J. H. **A new tonometer. Tonometry.** *Norsk. Mag. f. Laegevidensk.*, 1905.

402. HAUSMANN. W. **Stereoscopic pictures for testing binocular vision and training in squint. Introduction by A. Bielschowsky.** Leipsic, 1905.

403. BIELSCHOWSKY, A. **Hausmann's stereoscopic pictures and their use.** *v. Graefe's Arch.*, lxi., 3, p. 574.

404. DIXON, GEORGE S. **Accessory apparatus for locating foreign bodies in the eye and orbit.** ARCH. OF OPHTH. xxxiv., 3, p. 267.

405. RAMSEY, A. MAITLAND. **An adjustable stereoscope for training the fusion sense.** *Ophthalmoscope*, 1905, Jan.

406. TRUC, H. **The operative mouth-mask in ophthalmology.** *Rev. gén. d'opht.*, xxiv., p. 97.

407. SNELL, SIMEON. **The electro-magnet in ophthalmic surgery.** *Ophthalmoscope*, 1905, Feb.

408. MUELLER, L. **A lid speculum.** *Klin. Monatsbl. f. prakt. Augenh.*, xliii., 2, 266.

NARA (375, On scopolamin and its by-effects) reports a case of corneal injury and traumatic cataract in which, after instillation of scopolamin (0.04:10.0) cerebral symptoms developed in the form of a peculiar state of excitement, disappearing in two hours. In the case of a child of ten with eczematous pannus similar delirium and wandering, of a temporary nature, were noted. It is advisable to use scopolamin in no greater strength than 0.02:10.

WOTKRESENSKI (377, Stovain) uses stovain, an amyl-chloral hydratein ½ to 1 % solution. After injection of 0.12, there is local anæsthesia lasting 20 minutes. The drug has no toxic effects.

BOUCHARD (379 Accidents due to adrenalin) observed, in the case of a girl of twenty after squint-operation under local anæsthesia with cocaine and adrenalin, mydriasis lasting several days with partial parenchymatous opacity of the cornea and vesicular separation of the epithelium. The treatment consisted in the instillation of eserin and dionin. After four months a corneal opacity was still present. The disturbance is ascribed by Bouchard to the adrenalin.

GEBB (380 Alypin, a new anæsthetic) considers alypin, a high amido-alcohol-benzoic-acid-ester, as a substitute for cocaine, but less toxic and more easily sterilized. The anæsthesia is at least as good as that following cocaine, coming on after one or two, and lasting ten minutes. There is no mydriasis, no increase of tension, and no disturbance of accommodation. The toxicity is slight in comparison to cocaine. The drug is used in 2 % to 5 % solution.

SICHERER (381, Alypin, a new anæsthetic) also considers alypin preferable to cocaine on account of slighter toxicity, and because it causes neither accommodation paresis, mydriasis, nor corneal lesions. JACOBSOHN (382, Alypin, a new succedaneum for cocaine), too, recommends this drug, using it in 2 to 2.5 % solution, particularly in glaucoma as it does not increase tension.

HIRD (383, Ethyl-chlorid in eye-surgery; with an account of a fatality) has had wide experience with ethyl-chlorid. He considers it pleasant and free from danger, and has never seen any unpleasant effects, except in the one case which he reports. The death did not take place in an eye-case. Ethyl-chlorid had been used in an operation for the removal of suppurating glands of the neck, in a case which was particularly unsuited to this anæsthetic. The patient took the anæsthetic without struggling.

After one and a half minutes he was considered to be sufficiently under its influence. An incision was made over the swelling, when the patient suddenly stopped breathing. Everything possible was done to resuscitate the patient, but without avail. The result of the coroner's inquest was that the anæsthetic was the cause of death. DEVEREUX MARSHALL.

ULBRICH (385, Is Mueller's interval-prothesis free from danger?) reports a case in which Mueller's interval-prothesis was inserted after enucleation for sarcoma of the ciliary body. Soon after, symptoms of pyæmia developed, and the patient died. The wound cavity was covered with a slimy yellow secretion, in which streptococci in large numbers were found.

BJERKE (389, On the use of photographically diminished reading tests for the determination of near vision) recommends photographic miniatures of test-types for the determination of short-range vision, and finds them particularly serviceable in the visual test of high myopia.

POLACK'S (393, Optotypes in complementary colors) optotypes of alternating red and green stripes, *6mm* broad, running parallel, and in various angles. According to the author's views on chromatic aberration in the human eye (*Cf.* Review in *Arch. f. Augenh.*, lii., p. 263), only emmetropes see both colors clearly at the same time. Hypermetropes see the green stripes white, and the red ones darker than they really are. The myope sees the red stripes light red, and the green stripes dark gray. After correction of ametropia, both stripes are seen in their right colors. BERGER.

HEIMANN (395, On some new apparatus for determining the illumination of workrooms) recommends Wingen's photometer, and prefers it to all other instruments of the sort.

WERNICKE (396, Peculiar self-correction of one-sided myopic astigmatism) tells of a patient who corrected his unilateral myopic astigmatism by means of a button which pressed upon the globe, and was kept in place by a cord passing around the head.

OPPENHEIMER (398, Recent improvements in bi-focal glasses) describes two new models of eye-glasses with a double focus, of which one is made by Borsch in Philadelphia, the other by Struebin in Basle.

KOERBER (399, A double lens) has devised a double lens. It has two lenses, of 13 D. and 20 D. convex, respectively, as required for oblique illumination and for ophthalmoscopy in the inverted image, both mounted in a single oval frame.

BERGER (400, The use of the binocular loupe in ophthalmic surgery) speaks for the use of the binocular loupe, about which the article of Morax in the Handbook of Lagrange and Valude contains misleading statements. Morax speaks of the v. Zehender instrument and that of Westien as two different loupes, whereas there is but a single instrument, the Zehender-Westien, made after the principle of a Galileo telescope or binocular Chevalier-Bruecke loupe. The Jackson loupe and that of Berger, which Morax thinks identical, are different instruments. The latter is a binocular watchmaker's loupe, allowing many workmen who were formerly monocular to use both eyes. The new binocular loupe is in use in a number of factories, in Clermont-Ferrand, and in the Northampton Institute in London. BERGER.

SCHIOETZ (401, A new tonometer. Tonometry) has constructed a tonometer by means of which variations in intraocular pressure can easily be detected and recorded in values allowing comparison. The apparatus consists of a metallic case, ending in a foot-plate 9*mm* in diameter and concave (curve of 15*mm* radius). In this, a rod, 3*mm* in diameter, slides. Its base, which is to rest upon the cornea, has a similar concavity. Against the more pointed upper end of the rod there rests, in sliding contact, a short curved lever-arm, the longer arm of the lever being vertical and acting as a pointer, showing the amplitude of excursion on a scale. A diagram accompanying the instrument indicates the value in mm. of Hg. of a given reading. The apparatus weighs 4*gm*, and is applied to the cornea after anæsthesia with 2 % holocain, the patient lying supine. To allow the instrument to be used under various conditions of tension, it is supplied with four different weights, to be attached as required. Schioetz finds that the normal tension of the eye varies from 22 to 31*mm*. When the pressure rises above 30*mm*, the eye is suspicious, and should be kept under observation. As a proof of the practical value of this tonometer, a number of cases of glaucoma are reported in which the action of pilocarpin on the tension was accurately indicated by the instrument. HELLGREN.

HAUSMANN'S (402, Stereoscopic pictures for testing binocular

vision and training in squint) stereoscopic pictures for test of binocular vision and exercise in squint have a number of improvements. The two half-pictures on each card have about the same amount of detail in contour, so that there is no tendency to suppress one half-image. The number of details in the contour is rather large. For very defective vision there are pictures with very large surfaces of black and white. This, with the simplicity of the pictures, makes fusion easy. This is also aided by the greater part of the outline falling on identical retinal points, while there is but a slight lack of correspondence between those points of the outline which are not to be seen by corresponding points in order to produce the effect of depth. In this way the rivalry of contours is reduced to a minimum. Fusion of contours which do not correspond cannot take place. With binocular fusion all the pictures give a sensation of depth. As this is one of comparative simplicity, it can be described even by children. The half-pictures themselves give no clue to an interpretation of depth (by judgment). The distance between the two halves of the pictures can be varied, a distinct advantage, as the position of the pictures can be made to correspond exactly to the squint position in each case, while a gradual change in the distance of the pictures after fusion serves to introduce the training of the fusion faculty, which is the beginning of the "orthopædic" exercises in squint. The instrument is inexpensive.

BRUECKNER.

RAMSAY'S (405, An adjustable stereoscope for training the fusion sense) apparatus is a modification of Worth's amblyoscope. It is intended to be fastened to a table, and the use of total reflection by prisms instead of mirrors prevents disturbing double images. Behind each picture there is a little electric lamp, a more practical arrangement than that of the usual sliding lamp. The apparatus is made by Trotter, of Glasgow.

DEVEREUX MARSHALL.

TRUC (406, The operative mouth-mask in ophthalmology) advises for narcosis an appliance which covers the mouth of the patient only, and leaves the field of ophthalmic operations completely free. The apparatus is fastened to the patients' ears by spectacle bows. BERGER.

SNELL (407, The electro-magnet in ophthalmic surgery) was a pioneer in the use of the electro-magnet and its introduction into

ophthalmology. The first case in which he applied this method dates from 1880. His experience is now based on 300 cases. Snell's magnet is a hand magnet, and, without condemning the giant magnet, he brings out the advantages of the more handy instrument. It has the advantage over Haab's instrument of portability and cheapness. DEVEREUX MARSHALL.

MUELLER (408, A lid speculum) has devised a lid speculum which falls out, of its own accord, as soon as it is closed. When the lock is closed, the plates which engage under the lids are turned through an angle of 90° automatically.

Sections IV.–VII. Reviewed by DR. ABELSDORFF, Berlin.

IV.—ANATOMY.

409. MOLL, A. **On the demonstration of the neuroglia and axis-cylinders in the optic nerve.** *Fetsch. f. J. Hirschberg*, p. 195.

410. KRUECKMANN, E. **On pigmentation and proliferation of the retinal neuroglia.** *v. Graefe's Arch.*, lx., 2, p. 350.

411. PESCHEL, MAX. **Structureless eye-membranes under the ultra-microscope.** *Ibid.*, lx., 3, p. 557.

412. HEINE. **Note on the appearance of the retinal rods in cross-section.** *Ibid.*, lx., 3, p. 451.

413. MILDENBERGER, A. **Does the optic nerve of the horse contain central vessels?** *In. Diss.*, Tuebingen, 1905.

414. STOCKMEYER, WOLFGANG. **On the central retinal vessels of some indigenous carnivora.** *In. Diss.*, Tuebingen, 1905.

415. STAIGER, E. **On the central retinal vessels of our indigenous ungulates.** *In. Diss.*, Tuebingen, 1905.

416. RAWITZ, B. **Contributions to the microscopic anatomy of the cetaceæ. IV. The anterior half of the globe of Phocæna communis Cuv. and the iris of Balænoptera musculus.** *Internat. Monatsschr. f. Anat. u. Phys.*, xxii., p. 265.

417. ZIETSCHMANN, OTTO. **The "grape seeds" (iris-nodules, corpora nigra) of our domestic mammals.** *Arch. f. Mikr. Anat.*, 65, p. 611.

418. BRAUNE. **A contribution to our knowledge of cilio-retinal vessels.** *Klin. Monastbl. f. Augenh.*, xliii., 1, p. 579.

419. GROENOUW. **Intrascleral nerve-loops.** *Ibid.*, xliii., 1, 637.

420. VERMES, LUDWIG. **On the neuro-fibrils of the retina.** *Anat. Anzeiger*, xxvi., p. 601.

421. TARTUFERI, F. **On a new method of metallic impregnation of the tissues, especially the cornea.** *Ann. di Ottalm.*, 1–2, 1905.

MOLL (409, On the demonstration of the neuroglia and axis-cylinders in the optic nerve) lays small pieces of the nerve in 20 % formalin for two days, then for three days in Weigert's

glia-mordant in the thermostat. The paraffin sections are stained with a concentrated watery solution of acid fuchsin for ¼ hour, then in a wine-yellow solution of hæmatoxylin, and differentiated in permanganate of potash. The connective-tissue is yellowish, the axis-cylinders violet, the neuroglia red. Sections which have not been previously treated are placed in concentrated acetate of copper for twenty-four hours. Even this method is not "mathematically" exact and sure.

KRUECKMANN'S (410, On pigmentation and proliferation of the retinal neuroglia) anatomic investigations show an intercommunication of the entire retinal neuroglia-tissue, spider cells, Mueller's supporting fibres, external and internal limiting membranes (reticular membrane, according to Krueckmann), and perivascular glia membranes, which invest the retinal vessels. All those fibres, fibrils, and protoplasmic elements which have any direct, organic connection with either of these limiting membranes must be interpreted as glia elements.

PESCHEL'S (411, Structureless eye-membranes under the ultra-microscope) investigations with the ultra-microscope include Bowman's and Descemet's membranes, the zonule, and the lens capsule. In the first two, a fibrillary structure could be made out, which was more marked in the case of Descemet's membrane. The anterior and posterior lens-capsule of adult human beings and horses appear to be perfectly homogeneous and devoid of structure, while in the newly-born a structure appears. The appearance of the zonule corresponded with its well-known fibrillary structure.

According to HEINE (412, Note on the appearance of the retinal rods in cross-section), the rods of the human macula are circular in cross-section, while in the æquatorial region they show a regular hexagonal form like that of the cones of the foveal region.

MILDENBERGER (413, Does the optic nerve of the horse contain central vessels?) discusses the question as to the presence of central vessels in the optic nerve of the horse, about which there is much controversy in the literature. Longitudinal sections show that an artery enters the nerve 8–9*mm* behind its termination at the globe and divides near the disk, while the vein does not penetrate the nerve stem until just back of the papilla. The cross-sections seemed at variance with this finding. Two veins

run in the axis of the nerve "in all probability," while the question of arterial supply remained undecided. This diversity in material from only two animals speaks for a marked variability in the vascular distribution. There was, however, an axial island of connective tissue to be found in both longitudinal and cross-sections, showing that central vessels are generally present.

STOCKMEYER (414, On the central retinal vessels of some indigenous carnivora) examined longitudinal and cross-sections of the optic nerve of dogs, foxes, and cats for central vessels. They enter the nerve below, 1.5–2*mm* behind the sclera, and on the way to the papilla send off some small branches for the supply of the nerve. In the dog and fox there are numerous anastomoses in the nerve-head between the central and the cilio-retinal vessels. The latter are the principal source of blood-supply to the retina of the cat, as the central vessels are of extremely small calibre, and are very poorly developed in comparison to the cilio-retinal vessels at the margin of the disk.

STAIGER (415, On the central retinal vessels of our indigenous ungulates) found that the retina of ungulata (ox, sheep, goat, deer, pig) is supplied mainly by central vessels; the cilio-retinal vessels are poorly developed. They possess a characteristic connective-tissue strand in which the vessels enter the nerve from below and then run forward and upward. The central vessels differ from those of human beings in being branches of the posterior ciliary vessels which do not enter the nerve until it has pierced the sclera, so there is but a short stretch from their entrance to their division on the papilla. In the pig, remains of the hyaloid artery were also to be found at the point of branching. In goats, only the vein appears as a central vessel, while the artery runs in the sclera parallel to the axis of the nerve. In deer, too, only one vessel, probably a vein, was found; the other vessels entering in the neighborhood of the lamina cribosa were of cilio-retinal origin.

RAWITZ's (416, Contributions to the microscopic anatomy of the cetaceæ. IV. The anterior half of the globe of Phocæna communis Cuv. and the iris of Balænoptera musculus) description of the anterior segment of the globe in cetaceæ, phocæna, and balænoptera calls attention to a remarkable vascularity of the iris and the blood-plexus-like structure of the ciliary body. These structures depend on the aquatic life of these animals,

as without them the impossibility of breathing in diving below the water would soon carbonize the arterial blood. The lachrymal gland of phocæna is of alveolar structure, and has become a kind of sebaceous gland, with a solid as well as a fluid secretion.

ZIETSCHMANN'S [417, The "grape-seeds" (iris-nodules) of our domestic mammals] investigations show that the "grape-seeds" of our domestic animals, which are structures growing out of the pars iridica retinæ, consist of pigmented epithelial cells surrounding cavities. The latter contain vascular connective tissue and also clear fluid. The epithelial cells, containing pigment, particularly those of the horse, show signs of degeneration with the formation of a homogeneous "certainly fluid" substance. The author believes this secretion to be a secretion of aqueous in addition to that coming from the vessels of the ciliary processes and those of the "grape-seeds."

BRAUNE (418, A contribution to our knowledge of cilio-retinal vessels) saw in a patient, aged fourteen years, with myopia of 1 D. in both eyes, a cilio-retinal vessel, which appeared as a red band coming up from the depths at the margin of the disk and emptying into the central retinal vein.

GROENOUW (419, Intra-scleral nerve-loops) found in an eye enucleated for suppurative choroiditis the condition first described by Axenfeld as intrascleral loop-formation of a posterior ciliary vein. The fact that an anterior ciliary vessel accompanied the nerve leads Groenouw to infer that the blood-vessels growing through the sclera carried the preformed nerve with it into the sclera.

VERMES (420, On the neuro-fibrils of the retina) examined the retina of mammals, particularly that of the horse, with impregnation methods, especially those of Cajal and of Bielschowsky. He describes the fibrillary structure of the bi-polar cells and ganglion cells and the composition of the nerve-fibre layer of neuro-fibrils of the ganglion cells. Although the author considers the fibrillary structure of the retina as undoubted, he calls attention to his inability to find any continuity of the fibrils from the layer of rods and cones to the nerve-fibre layer which could invalidate the theory of neurones.

TARTUFERI (421, On a new method of metallic impregnation of the tissues, especially the cornea) immerses the cornea in 1 %

bichloride solution for two hours and then rinses it off in distilled water. It is then placed in a solution of sodium hyposulphite saturated with chloride of silver, which is kept at a temperature of 20°–30° C. In 3–4 months the impregnation is complete.

CIRINCIONE.

V.—PHYSIOLOGY.

422. V. SZILY. **Movement after-images and motion contrast.** *Zeitsch. f. Psych. u. Phys. d. Sinnesorg.*, 38, 2 and 3, p. 81.

423. PIPER, H. **Observations on a case of total color-blindness of the fovea in one eye and violet-blindness of the other.** *Ibid.*, 38, p. 155.

424. LIPPS, TH. **An explanation of geometric-optical delusions.** *Ibid.*, 34, 4, p. 241.

425. ANGIER, R. P., and TRENDELENBURG, W. **Determination of the proportions of complementary spectral colors in white mixtures.** *Ibid.*, 39, p. 1.

426. NAGEL, W., and PIPER, H. **On the bleaching of the visual purple by rays of various wave lengths.** *Ibid.*, 39, 1 and 2, p. 88.

427. NAGEL, W. **Dichromatic fovea and trichromatic periphery.** *Ibid.*, 1 and 2, p. 93.

428. FICK, A. E. **On the projection of retinal images outward.** *Ibid.*, 1 and 2, p. 102.

429. BRUECKNER, A., and v. BRUECKE, E. **The question of the possibility of distinguishing between dextrocular and sinistrocular impressions.** *Pflueger's Arch.*, 107, p. 263.

430. BASLER, A. **Pupillary reaction to lights of different color.** *Ibid.*, 108, p. 87.

431. MARBE, K. **Production of light-stimuli of short duration by means of the projection apparatus.** *Ibid.*, 107, p. 585.

432. WATT, H. J. **On the luminosity of single and repeated light-stimuli.** *Ibid.*, p. 591.

433. v. GRUENBERG. **Color equations with the aid of the three basal sensations of the Young-Helmholtz color system.** *Ann. d. Physik.*, p. 165, 1905.

434. PIPER, H. **On the function of the rods and cones and the physiologic significance of the visual purple.** *Med. Klinik*, No. 25, 26, 1905.

435. NIESSL and MAYENDORF. **The theory of cortical vision.** *Arch. f. Psychiatr.*, 39, p. 586.

436. HILBERT, R. **Violet vision.** *Centralbl. f. prakt. Augenh.*, xxix., 134.

437. LOMER, G. A. **Study of color perception.** *Zeitsch. f. Psych.*, 62, p. 63.

438. LOESER. **On the relation between area and stimulus value of luminous objects in foveal vision.** *Festsch. f. Hirschberg*, p. 161.

439. SCHMIDT, TH. **On lens images produced by reflection from the normal nucleus.** *Arch. f. Augenh.*, lii., 4, p. 397.

440. HEINE. **An experiment on accommodation and tension of the eye of a child just dead.** *v. Graefe's Arch.*, lx., 3, 448.

441. ROEMER, P. **The pathogenesis of senile cataract from the standpoint of serum-theories. II. The nutrition of the lens according to the theory of receptors and the determination of the receptor structure of the lens protoplasm.** *Ibid.*, lxii., 1 and 2, p. 230.

442. BERTIN-SANS and GAGNEIRE. **On the mechanism of accommodation and a new method of measuring the curvature of the anterior surface of the lens.** *Arch. d'opht.*, xxv., p. 275.

443. SULZER. **On Rochon-Duvigneaud's article concerning the human macula.** *Soc. d'opht. de Paris*, 14 Mars, 1905.

444. SIVEN, V. O. **Studies on the rods and cones as media of color perception.** *Finska Laekaresaellskop.*, 1905, p. 117.

445. JENSEN, ED. **Stereoscopic color perception.** *Hospitalstid.*, 1905, p. 117.

446. OVIO. **Pupillary reaction. Illumination and accommodation.** *Ann. di Ottalm.*, 1–2, 1905.

v. SZILY (422, Movement after-images and motion contrast) starts from the observation that motionless objects under certain conditions, after perception of actual motion, appear to move. By means of uniform movement of objects in the same direction before the resting eye, or by allowing the eye to rove over resting objects or by their being brought nearer or farther, a condition of excitation is produced which outlasts the stimulus, which gradually fades away in the form of an apparent motion in the opposite direction. This phenomenon is limited to the portion of the retina stimulated by the objective impression of motion. The apparent motion is best seen when the moved surface is well lighted but the projection surface is poorly lighted and not too rich in outlines. There is a difference in the reaction of the centre and that of the periphery in that apparent motion is most easily induced and lasts longer in resting objects seen with the periphery. If the after-image of the motion takes up a large part of the field, the apparent motion in the central part of the field is not in an opposite, but in the same direction. The intensity of the motion after-image depends less on the rapidity of motion than on the number of moved objects and the length of time of their action. When one eye only is exposed to moving objects the excluded eye also sees apparent motion although less markedly. Binocular impressions of motion in opposite directions inhibit the binocular but not the monocular perception of motion after-images, while binocular impressions of motion of

different but not opposite directions lead to after-images of a mixed nature.

The motion after-images may also produce a simultaneous motion-contrast which appears in consciousness either as an undulating cloud in case the contours are closely spaced, or as contour-contrast in a number of pseudoscopies. The author infers from a résumé of his observations that the explanation of these phenomena is not to be sought in any errors of the judgment faculty, but rather in direct optical sensations of motion (Exner), which as simple primary sensory stimuli are based on processes in the central organ.

The observations of PIPER (423, Observations in a case of total color-blindness of the fovea in one eye and violet blindness in the other), concerns a man of forty-nine years, with V. O.D. = $\frac{6}{36}$, V. O. S. = $\frac{6}{18}$. The ophthalmoscopic picture was that of pallor of the temporal half of the disks, slight peripheral retinitis in the left eye, consisting in one or two small foci of pigment and atrophic patches upward and outward. Both maculæ were normal. The clinical examination showed that central color perception was more defective than that of the peripheral region. The latter could not be carefully examined, but a study of direct vision showed the following condition: the red end of the spectrum was shortened. The sensibility for differences of luminosity was normal as was the adaptation for dark, both as to breadth of adaptation and the time needed for the maximum of sensibility. The so-called twilight-values of a spectrum of low luminosity which appeared colorless even to a normal eye, showed the typical conditions of sensibility for a visual organ adapted to darkness, with the maximum of sensibility in the green region. Quantitative examination with the color equations of a Helmholtz color-mixer showed complete color-blindness in the central region of the left retina. In the right eye there was violet blindness of the central and paracentral regions with diminished sensibility for red and green.

The left eye, then, shows complete color-blindness of two separate sets of perceptive elements, both of which possess the normal faculty of adaptation to varying illumination and the corresponding sensibility. The explanation of this complete color-blindness of the cones, in which the luminosity-values of color-sensations are preserved, is not given by either the Young-

Helmholtz theory or that of Hering. According to the former, the loss of function in all three sets of color-perceptive elements should be expressed in typical complete color-blindness with its characteristic changes in sensibility. Hering's theory of the specific luminosity of colors should lead us to expect loss of color stimuli to show itself or be accompanied by sensation of spectral lights according to their values in white,—that is, not in the distribution of luminosity of the bright colored spectrum but solely in that of the colorless spectrum of low luminosity.

ANGIER and TRENDELENBURG (425, Determination of the proportions of complementary spectral colors in white mixtures) finds that the color scale which the visual purple traverses in being bleached depends on the wave length of the bleaching light. Under the influence of rays from the violet end of the spectrum, a visual yellow appears before white. Rays of short wave length simply cause the visual purple to fade out. Koettgen and the reviewer, on the contrary, concluded from absorption tests of solutions of the visual purple that simple fading invariably takes place.

NAGEL and PIPER (426, On the bleaching of the visual purple by rays of various wave lengths) exposed the retina of owls and frogs, containing visual purple, to the bleaching action of the various colors of the spectrum, and also found that there was a simple fading without any change of hue. These experiments seem to show that Kuehne's "visual yellow" does not exist.

NAGEL (427, Dichromatic fovea and trichromatic periphery) found in examining the color sense of a locomotive driver that the Holmgren wool-tests and Stilling's test with pseudo-isochromatic tables were passed with ease, while the spectrum examination showed typical green blindness. N. concludes that if we exclude purely foveal color-perception such as is used in observation of the spectrum, this patient was not color-blind, as the extra-foveal part of the retina in all probability was endowed with trichromatic color perception.

FICK (428, On the projection of retinal images outward) made a number of experiments to determine whether the visual cells of the fovea project light impressions accurately. Test objects of various shapes were presented, to be pointed out with the hand without control of sight. Although it is impossible to determine the position of the hand accurately when

the eyes are closed, the errors in the attempts at projection, both horizontally and vertically, were greater than in ordinary touch experiments, *i. e.*, "the determination of the position of a point by fixation is still less exact than by touching with the hand." The apparent contradiction to the observations of every-day life disappears, if we realize that the projection outward of a point on the retina does not depend alone on the illuminated visual cells, but must be considered as a very complicated process, in which the entire visual field and the objects in it are made use of.

BRUECKNER and BRUECKE (429, The question of the possibility of distinguishing between dextrocular and sinistrocular impressions) agree in the main with Bourdon's observation that the sensation in the eye receiving the less decided impression is due to muscle and tendon sense. They consider it dependent on central processes, and a sort of "apparent" organic sensation. The authors disagree with Heine, who believes that there is a retinal ability to distinguish between dextrocular and sinistrocular impressions, and uphold the view of Helmholtz and Bourdon that secondary factors play an important rôle in this process.

BASLER (430, Pupillary reaction to lights of different color) has tested the influence of colored lights on the pupil, following the lead of Sachs and the reviewer. He observed the pupillary changes endoptically, but used much larger color-fields and greater intensities of illumination than his predecessors. It appears that when a change from one color to another is followed by contraction, a reversal is not necessarily accompanied by dilatation, but that contraction again takes place unless there is a marked change of intensity. Fatigue for any one color showed itself by a loss of reaction to a change in the same direction between two colors, while fixation of the first color for two minutes was sufficient to produce a contraction when the same change took place again. While Sachs and Abelsdorff find that the pupillo-motor value of a color coincides with its apparent luminosity, "several experiments proved that contraction of the pupil followed a change to an apparently darker color." To explain this phenomenon, as well as the fact that contraction of the pupil may follow a change from one color to another or back again, the author calls attention to the fact that there may be a simultaneous darkening of the central part of the field and

increased illumination of the periphery, or vice versa. As the central and peripheral elements see colors in different degrees of luminosity, it is possible that "the stimulus to contraction caused by increased illumination of the periphery may be as great as, or greater than, the dilatation stimulus due to darkening of the central field."

v. GRUENBERG (433, Color equations with the aid of the three basal sensations of the Young-Helmholtz color system) uses the observations of earlier investigators to deduce the following relation between the wave-lengths of two complementary colors. If the two rays be indicated by 1 and 1^1, then $(1-559)(498-1^1)=424$. There are complementary colors corresponding to all wave-lengths lying between 494 and 563, and these lie outside the visible spectrum in ultra-red and ultra-violet.

PIPER (434, On the function of the rods and cones and the physiologic significance of the visual purple) gives a résumé of the facts which support the theory of "duplicity," *i. e.*, that in adaptation of the retina for darkness and weak light stimuli the function of the rods predominates, that of the cones being more marked under the opposite conditions of adaptation to bright light and more intense stimulation.

NIESSL and MAYENDORF (435, The theory of cortical vision) examined the brain of a patient who, after a preceding right-sided homonymous hemianopsia, showed bilateral contraction of the visual field of only $1\frac{1}{2}°$ central extent, and also disturbance in orientation. The anatomical facts of importance are as follows: The entrance of the central visual tract into the cortex takes place exclusively in compact bundles or fascicles. The entire visual area marked, even to the naked eye, by the presence of Vic d'Azyr's medullary band. The cortical visual area itself produces no sensation of light, as it, like the rest of the cortex, is merely a mechanism of association which arranges optic percepts when preformed elements of stimulation are conducted to it from the periphery. The same cell complex bounded by the association-fibres of another side would produce senseless optical impressions. The macular bundle of the optic nerve also has a separate representation in the optic radiation, and the regions of the cortex connected with it are to be considered as macular visual cortex. As the macular bundle incorporates itself with the central tracts in an outward and downward direction, as well as

upward, we must consider those areas of the cortex which are situated immediately outward and downward and upward from the area of cortical vision as cortical representations of the macula.

HILBERT's patient (436, Violet vision), while convalescing from influenza, complained that all objects appeared violet-blue. After thirty-six hours this symptom disappeared. Hilbert has found record of five similar cases in literature.

LOMER (437, A study of color perception) gives a literary review and the case history of a patient, a girl with juvenile psychosis, who complained for four weeks of seeing green. Tests of color perception showed perfectly normal conditions.

LOESER's (438, On the relation between area and stimulus value of luminous objects in foveal vision) experiments sustain the theorem of Ricco that for the visibility of foveal objects the product of area of the retinal image and the light-intensity is a constant value. The experiments were carried out in the following way. After adaptation for darkness for a quarter of an hour, a determination of the liminal perception of the eye was made, and then the stimulus area was varied by changing the size or distance of the test-object, and the light-intensity modified by means of an iris diaphragm. As is well known, this law does not apply to the periphery of the retina.

SCHMIDT (439, On lens images produced by reflection from the normal nucleus) remarks in regard to an article with the same title by Hess (these *Archives*, German Edition, vol. li.) that he has often observed two anterior and two posterior lens-images in horses.

HEINE (440, An experiment on accommodation and tension on the eye of a child just dead) made the following experiment with the eye of a boy of ten, which had just been enucleated for sarcoma of the sclero-corneal limbus. A small flap wound was made at the æquator in which a "pearl" of vitreous presented. Under stimulation by the faradic current, accommodation took place as could be distinctly seen by retinoscopy, while absolutely no change took place in the bead of vitreous, showing that accommodation can take place after intraocular tension has been eliminated, and that the contraction of the ciliary muscle does not compress the vitreous. Tension is independent of accommodation, and vice versa.

ROEMER (441, The pathogenesis of senile cataract from the standpoint of serum-theories. The nutrition of the lens according to the theory of receptors and the determination of the receptor structure of the lens protoplasm) goes beyond the mere physical view of the nutrition of the lens by diffusion, osmosis, etc., and tries to establish the laws of affinity of the lens protoplasm as well as its biologic functions. He shows that the lens has receptors capable of binding antibodies. Solution of lens albumen of the pig caused agglutination of blood corpuscles of the rabbit, only, so that the lens contains specific hæmagglutinins. Of the two toxines, tetano-lysin, and tetano-spasmin, only the first is bound by the lens. With the anti-tetano-lysin present in the lens it is possible to neutralize the toxic action of this poison on rabbit blood. Besides these receptors which bind simple toxines the lens contains factors of an antihæmolytic nature, which hold fast the serum complements. Lens protoplasm neutralizes the hæmolytic action of human serum. There is a noticeable difference between the nucleus and the cortex of the lens in regard to the antihæmolytic action, the latter being much more active.

The investigations of SULZER (443, In Rochon-Duvigneaud's article concerning the human macula) as to the minimum angle under which perception is possible, agree with the anatomic findings of Rochon-Duvigneaud who found that the cones in a central area of the macula were less thick than has generally been taught. The sharpest vision is limited to an area of only 25 minutes' useful vision, to a macular region of at most 2 degrees.

BERGER.

SIVEN (444, Studies on the rods and cones as media of color perception) concludes from an exhaustive experimental and theoretic study on the function of the rods and cones in light sensation, that the retina contains only two color-perceptive terminal apparatuses. The cones are the elements concerned in the perception of long waves of light and their complements, and represent the sensory apparatus for red-green, while the rods attend to the other pair, yellow-violet. There is no special apparatus for the perception of white-black, as required by Hering's theory, as sensations of white are transmitted by both rods and cones, while the sensation of black is merely due to the more or less complete absence of any stimulation, and is to be considered as a conscious simple negative phenomenon. HELLGREN.

JENSEN 445 (Stereoscopic color perception) has noticed that when concave glasses are decentred nasally, stereoscopic color vision results, blue appearing to be nearer than red.

HELLGREN.

OVIO (446, Pupillary reaction ; illumination and accommodation) comes to the conclusion reached some time ago by Lambert. The variations in the area of the pupil are, when compared to a central area, proportional to the distance of the source of light, and inversely proportional to the square root of the intensity. Within certain limits the reaction of the pupil depends exclusively on the intensity of the light-stimulus striking the retina, whether this amount of light be distributed over a large area or limited to a very small one. The same amount of light produces a greater pupillary reaction when it strikes the centre of the retina. When the light stimulus and that of accommodation act simultaneously, the latter predominates. The pupil reacts to accommodation, without convergence, and vice versa, but the reaction to isolated convergence is the stronger. CIRINCIONE.

VI.—REFRACTION AND ACCOMMODATION.

447. ELSCHNIG, A. **The elastic fibres in the sclera of myopic eyes.** *Wien. klin. Rundsch.*, 1905, No 29, p. 508.

448. HOSCH, G. **On the latest theory (Prof. Lange's) of progressive myopia.** *v. Graefe's Arch.*, lxi., 1, 227.

449. BIRCH-HIRSCHFELD, A. **On the question of elastic fibres in the sclera of myopic eyes.** *Ibid.*, lx., 3, 552.

450. SEGGEL. **On the nature of progressive myopia.** *Muench. med. Wochensch.*, 1905, xvii., 847,

451. PFALZ. **The importance of optical emmetropization in the treatment of myopia.** *Ibid.*, p. 843.

452. KOENIGSCHOEFER. **On myopia.** *Wuerttemb. med.-corresp. Bl.*, 1905, 464.

453. HELBRON. **Pathogenesis and treatment of myopia.** *Berl. klin. Wochensch.*, 1905, No. 26, p. 1032.

454. v. HIPPEL. **Operation for myopia and retinal detachment.** *Deutsche med. Wochensch.*, 1905, No. xxvi., p, 1032.

455. WEIGELIN, S. **The influence of full correction on the progress of myopia.** *In. Diss.*, Tuebingen, 1905.

456. WERNICKE. **Remarkable self-correction of unilateral astigmatism.** *Deutsche militaer-aerztl. Zeitz.*, 1905, No. 5.

457. SCHLEV. **On the frequency of, and visual acuteness in, astigmatism.** *Ibid.*, xxxiv., p. 353.

458. STIRLING. **Recurrent paralysis of ocular muscles associated**

with pain. ARCH. OF OPHTH. xxxiv., 4, p. 341. (Case of relapsing oculomotor palsy.)

459. KATZ, R. **On vision in diffusion circles.** *Westn. Opht.*, 1905, No. 3.

460. KOSLOSKY. **Primary extraction of the lens for high myopia.** *Ibid.*, 1905, No. 3.

461. LAGRANGE, F. **Variation of astigmatism with age.** *Arch. d'opht.*, xxv , p. 216.

462. CHIARI, C. **Studies on the modification of the curvature of the cornea by contraction of extraocular muscles.** *Ann. di. Ottalm.*, 3-4, 1905.

ELSCHNIG (447, The elastic fibres in the sclera of myopic eyes) has tested Lange's statement that the elastic fibres are very poorly developed in the sclera of myopic eyes. An examination of a large number of globes convinces him that the elastic fibres are not disproportionately scanty, considering the marked thinning of the sclera, and that their thickness varies only within normal limits. Lange's error was due to the fact that elastic fibres behave very capriciously toward staining methods of the sclera, and also to the entirely different structure of the sclera in myopic eyes, where the usual matting is replaced by an arrangement in lamellæ. The meridional fibre-bundles run in an extended course parallel to the surface of the sclera, and exchange but few fibres. The bundles crossing these, which in meridional sections are cut across, are thin and flat. Thus, cross-sections of the fibres show the elastic fibres as dots, while those on the surface bundles of the lengthwise bundles appear in longitudinal sections in only a very small number, are not easily recognized, and so give the impression that the sclera is "very poor in elastic tissue." These anatomic findings are opposed to Lange's theory that myopia depends on congenital lack of development of the elastic fibres of the sclera.

HOSCH [448, On the latest theory (Prof. Lange's) of progressive myopia] examined one globe with low and six with high degree of progressive myopia, and found no lack or diminution in size of the elastic fibres in the sclera, so that he cannot support Lange's views.

BIRCH-HIRSCHFELD (449, On the question of elastic fibres in the sclera of myopic eyes), too, was unable to corroborate Lange's statement that there is a lack of elastic fibres in the sclera of myopic eyes. Examination of six myopic eyes showed that there

were plenty of elastic fibres in all layers of the sclera in the anterior section, as well as in the region of the ectatic posterior pole.

SEGGEL (450, On the nature of progressive myopia) thinks that, besides Lange's lack of elastic fibres, the thinning of the sclera is a predisposing factor in the causation of myopia. Furthermore, if there is a poor development of the circular portion of the ciliary muscle, accommodation is accompanied by excessive action of the meridional fibres, causing tension of, and traction on, the choroid and the layers of the retina which are connected with it. Under these circumstances accommodation, too, may have a bad effect. Progressive, deletory myopia may be due to lack of elastic fibres and thinning of the sclera alone, or there may be in addition a lack of development of the ring-muscle of accommodation. In weak accommodation, full correction is to be avoided, in order not to induce spasm and consequent traction on the choroid. In low degrees of myopia and even in emmetropia, where there is weak accommodation, even a weak convex glass may be given for near work, to prevent the myopia from progressing, and so avoiding deterioration of vision.

PFALZ (451, The importance of optical emmetropization in the treatment of myopia) again calls attention to the advantage of full correction of myopia when there is good accommodation. The prismatic and astigmatic effect of strong concave lenses may be avoided by periscopic glasses or goggles. In juvenile myopes, full correction completes the hygienic management of near sight.

HELBRON (453, Pathogenesis and treatment of myopia) reviews the theories of the development of myopia and the results of full correction published above. At the Berlin University eye-clinic it has been the custom for years to prescribe full correction for distance and to "consider the astigmatism." For near vision, full correction is given to youthful myopes up to 8 D. In high, degrees and older patients under-correction is given. The statistics of these cases are not presented, but are said to be "very satisfactory, all in all."

v. HIPPEL (454, Operation for myopia and retinal detachment) has performed the operation for myopia on 275 eyes since 1893. Detachment was found in 9.5 %. As the author considers detachment coming on more than two years after operation as

independent of the surgical procedure and spontaneous in character, only 13 cases—*i. e.*, about 5 %—remain which could have been due to the operation. In cases with myopia of 14 D. or more, in which no operation was performed, and among 100,000 patients, 842 eyes of this sort were found, detachment was noted 53 times, *i. e.*., about 6.3 %. Of the operated cases, out of 149, there was detachment in the non-operated eye in 7 (4.7 %); in the operated eye in 9 cases (6 %). There is no reason for holding the operation responsible for the 9.5 % of detachment, nor for a general desertion of the extraction of the lens in high myopia.

WEIGELIN (455, The influence of full correction on the progress of myopia) had 714 cases of myopia from the Tuebingen eye-clinic under observation for at least two years. 12.6 % had full correction ; 5 % full correction for distance and partial correction for near work. Most of the cases with full correction remained stationary (89.7 %), while there was progress in 56.59 % of the under-corrected cases. Even considering that with advancing age the tendency for myopia to progress becomes less (from about the twentieth year on), still there is a preponderance of progressive cases up to the twentieth year only if the cases of full correction are not counted. In case the latter are also included in the reckoning, there is a preponderance of stationary cases as early as the sixteenth year. The author notes that a decision on the subject of the value of full correction can only be reached after a study of much more extensive material, but that his cases show that full correction does no harm, and, on the contrary, in appropriate cases will prevent the progress of the disease.

WERNICKE (456, Remarkable self-correction of unilateral astigmatism) observed the following case. The patient had compound myopic astigmatism, which he partially corrected by means of a knot in a cord which was passed around the head and pressed on the upper lid. By partially closing the lids a stenopæic slit was produced which completed the correction.

SCHLEY (457, On the frequency of, and visual acutness in, astigmatism) calls attention to the great importance of astigmatism in military life. Of 30,098 eyes examined, 2210, or 7 %, had astigmatism of 1 D. or more. There were 54 more cases among females. In 221 the astigmatism was monocular. Vision of more than $\frac{20}{30}$ was found in 12 % before, and in 67 % after, correction, so that the majority are capable of serving with the

active army, 30 % with V. $\frac{20}{40} - \frac{20}{50}$ are fit for the reserve, and but 2.6 % unsuitable. Without correction the greater percentage of astigmatics would be unfit for military service. Of 2210 astigmatic eyes, 691 had oblique axes, of which 6.2 % were symmetrical. Astigmatism of 5 D. to 7 D. was found 12 times. Simple myopic astigmatism is most easily corrected; compound myopic astigmatism gives the least satisfactory results.

KATZ (459, On vision in diffusion circles) reports some cases in which myopia of high degree, as determined retinoscopically and with the refraction ophthalmoscope, presented about the same acuteness of vision before and after correction. No cause could be ascertained for the amblyopia present in these cases. Some patients may have a special faculty of seeing in diffusion circles and of interpreting the dispersion optically. This may also explain a possible accommodation in aphakia, and should not be mistaken for simulation. HIRSCHMANN.

KOSLOWSKY (460, Primary extraction of the lens for high myopia) considers extraction of the lens justifiable in all cases of high myopia in which correction with glasses is not satisfactory (? REV.). The lens is removed without previous needling and without iridectomy. The section is made in the margin of the clear cornea. Within five years the author has operated on twenty-one eyes, without loss of vitreous. In one case lens masses remained behind and produced synechiæ. Detachment occurred in one case, two years after the operation. The average duration of treatment was eighteen days. HIRSCHMANN.

LAGRANGE (461, Variation of astigmatism with age) studied the variations in astigmatism during growth. In forty-four cases of hyperopic astigmatism there was a decrease in forty-one. Of twenty-nine cases of myopic astigmatism there was an increase in eighteen. It is not easy to explain these facts, although the latter might be elucidated by Martin's theory of partial contraction of the ciliary muscle, which is supposed to alter the curvature of the cornea. BERGER.

According to CHIARI (462, Studies on the modification of the curvature of the cornea by contraction of extraocular muscles), the astigmatic cornea changes its static properties when the globe is forcibly rotated inward or outward. These variations are due to the action of the lateral recti. An increase of curvature takes place in the horizontal meridian and a flattening in the vertical

meridian. These two factors produce a tendency for the astigmatism to lessen. CIRINCIONE.

VII.—MOTOR APPARATUS.

463. FLEISCHER, B. **Bell's phenomenon.** *Arch. f. Augenh.*, lii., 4, 359.

464. ABELSDORFF, G. **The condition of the pupils after intracranial section of the optic nerve.** *Ibid.*, lii., 3, p. 309.

465. v. PFLUGK. **Transplantation of the insertion ridge of the ocular muscles as a squint operation.**

466. EHMER, M. **Report on strabismus cases in the Giessen clinic.** *In. Diss.*, Giessen, 1905.

467. WOLFF, H. **On the tendon of the levator. II. Symblepharon operation. III. Transfer of the action of the superior rectus to the upper lid in ptosis.** *Zeitsch. f. Augenh.*, xiii., 5, p. 410.

468. OHM. **On advancement in paralytic squint.** *Klin. Monatsbl. f. Augenh.*, xliii., 1, p. 666.

469. AXENFELD, TH. **Congenital disturbances of motility of the eye.** *Centralbl. f. Nervenh. u. Psych.*, xviii., p. 547.

470, VORKASTENER. **Three cases of rare ocular paralyses.** *Ibid.*, xxviii.

471. BLASCHEK, A. **An attempt to explain paradoxical associated motions of lids and eye.** *Zeitsch. f. Augenh.*, xiii., 750

472. KINIKI NAKA. **The peripheral and central paralyses of ocular muscles.** *Arch. f. Psych.*, xxxix., 3.

473. HEDDAËUS. **On the causation of myosis in reflex iridoplegia paralysis.** *Centralbl. f. Nervenh. u. Psych.*, xxviii., p. 129.

474. VERAGUTH, O. **On the testing of pupillary light-reaction.**

475. COBURN, E. **The ophthalmo-kinetograph. An apparatus to record ocular movements.** ARCH. OF OPHTH., xxxiv., 1, 1.

476. COLLINS, W. **Traumatic palsy of levator, superior rectus, and sphincter pupillæ. Monocular amblyopia. Recovery.** *Ophthalmoscope*, March, 1905.

477. DEJERINE and ROUSSY. **Conjugate deviation in a case of congenital blindness.** *Soc. de Neurol.*, 12 January, 1905.

478. ABADIE, CH. and CUNEO. **Treatment of severe blepharospasm by spino-facial anastomosis.** *Arch. d'opht.*, xxv., 201.

479. TUEMZING. **The influence of the cervical sympathetic on accommodation.** *In. Diss.*, May, 1905.

480. MAGNANI, C. **On the treatment of ocular hypotony.** *Ann. di Ottalm.*, 1–2, 1905.

FLEISCHER'S (463, Bell's phenomenon) patient had lost the right eye in an explosion. The left eye was intact, but the upper lid margin was defective. After a plastic operation the lids could be almost completely closed, the globe turning upward in the at-

tempt. In the course of two months the inner part of the upper lid showed scar-thickening. At the outer part there were scarred masses of granulating conjunctiva. The globe now turned downward with gentle closure of the lids, and upward when much exertion was used. Two years later all attempts at closure were accompanied by rotation of the eyeball inward and downward. This observation seems to speak in favor of a subcortical centre of co-ordination of the orbicularis with the oculomotor muscles, and against an anatomic connection between the latter and the facial. It also supports Nagel's view that in Bell's phenomenon the associated motion is a reflex. In rotating upward the eye would have been put in a very unpleasant position. The position assumed was that in which there was least pressure on the cornea.

ABELSDORFF (464, The condition of the pupils after intracranial section of the optic nerve) was unable to corroborate the observation of Marenghi that there is persistence of the light-reaction of the pupil after intracranial section of the optic nerve. Even when the orbit was not touched, interruption of the conduction through the optic nerve was invariably followed by loss of reaction to light.

EHMER (466, Report on strabismus cases in Giessen clinic) found in 633 cases of convergent squint, 39 cases in which there was a similar affection in other members of the family. The refraction was hyperopic in 64 %, myopic in 3.6 %, and emmetropic in 1.5 %. Ehmer has found 32 cases (? REV.) in which the vision improved after operation. Convergent squint was found in 1.49 % (of 52,000 cases), divergent squint in 0.76 %, and strabismus sursumvergens or deorsumvergens in 0.0076 %. Associated with the squint or following it, the author noted asymmetry of facial development, curvature of the cervical spine, and abnormal carriage of the head and shoulder in 46 cases.

WOLFF (467, On the tendon of the levator. II. Symblepharon operation. III. Transfer of the action of the superior rectus to the upper lid in ptosis) again shows by drawings that there is a tendon of the levator palpebræ superioris which runs down in front of, and is fastened to, the anterior surface of the tarsus. He also reports a complete success, in the case of a girl of sixteen, of the operation mentioned, consisting in the transplantation of flaps

to the tendon radiation of the superior rectus, and shows that this structure is especially suited for the attachment of the tarsus in cases of ptosis.

Ohm (468, On advancement in paralytic squint) advises advancement as the only operation indicated in paralytic squint. Five case-histories are given to show the result. The second of these shows that a paralysis of the external rectus of obscure ætiology was operated within one month of its development.

Axenfeld (469, Congenital disturbances of motility of the eye) notes that the structure of the paralyzed muscle, or of the tissue which supplants it, is a determining factor in the development or non-development of paralytic squint in congenital abducens paralysis. The atrophy and connective-tissue degeneration of the muscle, which are almost invariable in acquired palsy, are not at all necessary accompaniments of the congenital form.

Blaschek (470, Three cases of rare ocular paralyses) saw two cases of ptosis, due to syphilitic oculomotor palsy, in which there was a dilatation of the lid-fissure on abduction, and narrowing on adduction, of the paralyzed eye. On looking upward there was slight enlargement of the lid-fissure. This was more marked when the gaze lowered. This phenomenon is merely an accentuation of the normal conditions in which adduction is accompanied by a slight raising of the lid, and abduction by a slight lowering, although the opposite is sometimes observed. The widening of the lid-fissure on downward rotation of the ptotic eye is explained by spasm of the levator associated with a slight lowering of the lower lid.

Kinki Naka (472, The peripheral and central paralyses of ocular muscles) observed the following cases in the Kiel clinic :

1. Left peripheral oculomotor palsy accompanying tuberculous meningitis in an alcoholic subject, aged twenty-nine. Autopsy showed hemorrhages and cheesy degeneration of the meninges, tubercle formation on the ependyma, and marked involvement of all the ocular nerves at their points of exit. Slight hemorrhage in the oculomotor nucleus without cell-changes, spotty degeneration of the oculomotor and acousticus roots.

2. Chronic ophthalmoplegia externa and interna of nuclear origin in a case of tabic paralysis with optic atrophy. The autopsy showed degeneration of the abducens nucleus and the

intramedullary root, normal ventral abducens nucleus, total degeneration of the trochlearis nuclei, principally in the proximal region, marked changes in the lateral nuclei of the oculomotorius and the root-fibres, slight changes in the central nucleus. There was marked atrophy of all the nerves of the ocular muscles and degeneration of the muscles themselves.

HEDDAEUS (473, On the causation of myosis in reflex pupillary paralysis) finds that in reflex iridoplegia in which there is usually no oscillation of the pupil, accommodation for near vision causes a contraction stimulus and the pupil gradually contracts. There is no explanation of the persistence of this accommodative contraction.

VERAGUTH (474, on the testing of pupillary light-reaction) describes an incandescent lamp, run by a dry cell and attached to a convex lens and an iris diaphragm. By pressure on a button, momentary illumination is produced and the light-reflex of the pupil can be studied.

COBURN'S (475, The ophthalmo-kinetograph, an apparatus to record ocular movements) apparatus is a photographic camera with two lenses, which receive the images of the corneal reflex of both eyes, one on a horizontally-moving plate, the other on a vertically-moving plate. In this way the movements of both eyes may be recorded graphically.

COLLINS'S (476, Traumatic palsy of levator, superior rectus, and sphincter pupillæ; monocular amblyopia; recovery) patient was a boy of fourteen with ptosis of the right upper lid and marked mydriasis. Five days before, he had been struck in the right eye with a pitchfork. No penetrating wound could be found, although there was a small laceration of the conjunctiva at the inner canthus. Besides complete ptosis, there was loss of motility upwards. The pupil was widely dilated, and did not react. Vision was reduced to perception of light. There was no disturbance of sensibility, and the fundus was normal. After several weeks the symptoms disappeared completely. Collins is of the opinion that the injury produced "molecular" changes in the optic nerve, the ciliary nerves or muscles, and in the extra-ocular nerves or the muscles themselves, causing a temporary loss of function. DEVEREUX MARSHALL.

DEJERINE and ROUSSY (477, Conjugate deviation in a case of congenital blindness) observed left hemiplegia with associated

conjugate deviation of the eyes toward the left and of the head to the right, in a woman of sixty-one, born blind, coming on after an apoplectic seizure. Autopsy showed a focus of softening in the retro-lenticular area of the internal capsule, with involvement of the nucleus lentiformis, optic thalamus, and Gratiolet's optic radiation. This demonstrates that conjugate deviation may occur without hemianopsia, that the condition is probably of uniformly paralytic character (as the patient could correct the faulty position at will), and that there can be no single cortical centre for rotation of the eyes and head, as both motions may take place independently, *i. e.*, rotation of the eyes to one side and of the head to the other. BERGER.

ABADIE and CUNEO (478, Treatment of severe blepharospasm by spino-facial anastomosis) report a case of severe blepharospasm in which an excellent result was obtained by artificial anastomosis of the spinal accessory with the peripheral stump of the facial after the method of Kennedy. Of twenty-four cases operated so far, there were only six failures. Regeneration of the peripheral part of the facial took place in from seven days to two months. The technique of the operation is described in detail.

TUEMZING (479, The influence of the cervical sympathetic on accommodation) reviews the literature on the influence of the cervical sympathetic on accommodation, and reports the results of his own experiments, on cats and dogs. Preliminary iridectomy was made in two meridians whose refraction was then determined by retinoscopy under eserine. Tests were then made during narcosis by local electrical stimulation of the globe which produced contractions of the ciliary muscle, as well as during irritation of the sympathetic and simultaneous irritation of the globe and of the sympathetic. Tuemzing comes to the following conclusions:

1. The sympathetic has no influence on accommodation. Section of the nerve does not produce spasm, and irritation is not followed by either positive or negative accommodation. Irritation of the sympathetic has no inhibitory effect on an already induced dynamic refraction increase.

2. Stimulation of a long ciliary nerve causes no diminution in dynamic refraction. JITTA.

MAGNANI (480, On the treatment of ocular hypotony) attributes lowered tension following injury or intraocular inflammation to

paralysis of the sympathetic. He has successfully treated five cases of this sort with galvanism of the cervical sympathetic of the affected side, using a current of 10–20 amperes for ten minutes. The positive pole is placed at the back of the neck, the negative pole on the anterior margin of the sterno-cleido-mastoid muscle. CIRINCIONE.

Sections VIII–XII. Reviewed by DR. R. SCHWEIGGER, Berlin.

VIII. LIDS.

481. MOREAU, E. **Malignant œdema of the lower lid, without pustule. Anthrax bacillus present. Recovery.** *Rev. gén. d'opht.*, xxiv., p. 193.

482. MANZUTTO, G. **Case of double initial sclerosis of the lids.** *Ann. di Ottalm.*, 1–2, 1905.

483. MORAX and DRUAIS. **Ulcerative syphilitic tarsitis.** *Soc. d'opht. de Paris*, 14 Mars, 1905.

484. SCHAPRINGER. **On varieties of epitarsus.** *Centralb. f. prakt. Augenh.*, xxix., p. 129.

485. HOCHHEIM, W. **The operative technique in cicatricial ectropium complicated with trichiasis.** *Arch. f. Augenh.*, lii., 1–2, p. 201.

486. BRIGANTI. **The transplantation method for the treatment of trichiasis and new instruments for the operation.** ARCH. OF OPHTH., xxxiv., 3, p. 246

487. BIRCH-HIRSCHFELD, A. **On Buedinger's tarsoplasty.** *Klin. Monatasbl. f. Augenh.*, xliii., p. 1, 463.

488. ELTER and HAASS. **New method of operation for lid-defects and ectropium, by grafts from the auricle.** *Muench. med. Wochenschr.*, 1905, No. 38, p. 1821.

489. MORETTI, E. **Paraffin injections in the treatment of entropium.** *Ann. di Ottalm.*, 5–6, 1905.

490. AGABABOW, A. **Modifications of the entropium-operation.** *Westn. Ophth.*, 1905, No. 3.

491. SCHIMANOSKY, A. **On the operation for ptosis.** *Westn. ophth.*, 1905.

492. TAYLOR, J. **Case of congenital ptosis and meningocele.** *Report of the Soc. Dis. of Childr.*, vol. 4.

493. SCIMEMI, E. **Plexiform neuroma of the lids.** *Ann. di Ottalm.*, 5–6, 1905.

494. VALUDE, **Melanosis of the lids in progressive spots.** *Soc. d' opht. de Paris*, 14 Mars, 1905.

495. UHTHOFF. **Paraffin tumor of the lids after plastic injection into the bridge of the nose.** *Berl. klin. Wochensch.*, 1905, xxxv., p. 1127.

SCHAPRINGER (484, On varieties of epitarsus) reports three cases of pronounced epitarsus of a triangular pterygium-like

form. Both crura were free of the neighboring tarsal mucous membrane.

HOCHHEIM (485, The operative technique in cicatricial ectropium complicated with trichiasis), modifies the usual wedge-form Snellen incision for entropium with trichiasis by a special arrangement of the sutures. In place of the characteristic intermarginal section in front of the openings of the Meibomian glands, the intermarginal part of the tarsus is split throughout its entire length without regard to the glands to a depth of *2mm.* Any glands which have not degenerated are curetted. A skin-graft from the upper lid is then transplanted into the tarsal cut.

BIRCH-HIRSCHFELD (487, On Buedinger's tarsoplasty) has performed, in five cases, Buedinger's operation, replacing the lid and tarsus by a skin and cartilage flap from the concha. The procedure is recommended in cases of amputation of the lid as well as in severe trachoma. In order to avoid irritation of the cornea by the cartilage of the flap, the skin flap which is to form the conjunctival surface is made somewhat larger and carefully sutured.

ELTER and HAASS (488, New method of operation for lid-defects and ectropium by grafts from the auricle) also use as a substitute for the lower lid a flap of skin and cartilage from the auricle, partly from the attached and partly from the free border.

MORETTI (489, Paraffin injections in the treatment of entropium) injected paraffin melting at 70° C. into the upper lid of a rabbit. The lid was held in a Desmarres lid clamp and the injection made along the lid margin between the cutis and the tarsus. Swelling and redness developed, which disappeared in 25–30 days. The ciliary margin remained ectropionated, so that a small rim of ocular conjunctiva could be seen at the lid margin.

CIRINCIONE.

AGABABOW (490, Modifications of the entropium-operation) has made use of the following operation, during the last few years: After fixing the lid, in Knapp's or Desmarres's clamp, the section is made, as in Snellen's method, through skin and muscle, down to the tarsus and parallel to the lid margin. The soft parts are dissected back off the tarsus above, to the ligamentum tarsi, and below, almost to the roots of the cilia. Instead of exsecting a wedge-shaped piece from the tarsus, a furrow is burnt into it with the thermo-cautery, about *1mm* wide, and 0.5–0.75*mm* deep. The burnt tissue is easily rubbed away with a moistened swab.

The margins of the furrow are approximated by traction on the lower edge of the skin incision with a forceps, and the latter closed by five sutures. Each suture is passed through the upper skin wound, through a fold of the ligamentum tarsi, and finally through the lower skin-wound, emerging at the lower lid margin. This procedure has been used in nearly 1000 cases since 1900. The results were satisfactory. The operation can be regulated to the degree of the entropium. HIRSCHMANN.

TAYLOR'S (492, Case of congenital ptosis and meningocele) patient was a boy of five and one-half, whose eyes had been prominent since infancy. The skull was peaked. There was an occipital meningocele, exophthalmus, squint, nystagmus, and lack of mental development. Vision had recently become markedly worse through optic atrophy.

UHTHOFF'S (495, Paraffin tumor of the lids after plastic injection into the bridge of the nose) patient had had an injection of paraffin for saddle-nose. The mass had extended so far into the lids that they could not be opened spontaneously. Uhthoff succeeded in extirpating enough of the paraffin to mobilize the lids. The paraffin lay subcutaneously but extended deep into the orbit.

IX.—LACHRYMAL APPARATUS.

496. WICHERKIEWICZ. **On acute inflammations of the lachrymal gland.** *Arch. d' opht.*, xxv., p. 347.

497. ORLANDINI, O. **Studies on dacryo-adenitis.** *Ann. di Ottalm.*, 7, 1905.

498. MORETTI, E. **Case of suppurative orbital dacryo-adenitis after facial erysipelas.** *Ann. di Ottalm.*, 1, 1905.

499. PARIRETTI, O. **Tuberculosis of the lachrymal gland.** *Riv. Ital. di Ottalm.*, 2, 1905.

500. BASSO, D. **Chronic affections of the lachrymal passages studied by means of extirpation of the lachrymal sac and duct.** *Ann. di Ottalm.*, 3-4, 1905.

501. LEBLOND. **On dacryocystitis following radical operation (Luc-Caldwell) on the maxillary antrum.** *Arch. d opht.*, xxv., p. 295.

502. RICHTER. **Furuncle of the lachrymal caruncle.** *Beitr. z. Augenh.*, 63, p. 11.

ORLANDINI (497, Studies on dacryo-adenitis) reports fourteen cases of dacryo-adenitis, observed at Venice within a few years, and adds a histologic and bacteriologic report. The palpebral gland is especially susceptible to disease by propagation of

inflammatory processes along the vessels or efferent ducts. The only micro-organism found was the staphylococcus.

CIRINCIONE.

MORETTI (498, Case of suppurative orbital dacryo-adenitis after facial erysipelas) observed a case of suppurative dacryo-adenitis due to facial erysipelas, and concludes that the streptococcus reached the tissue of the gland by way of the lymphatics instead of through the excretory ducts, and that the germ originally penetrated into the lymphatics of the orbital cellular tissue, causing prominence of the globe and complete loss of motility. According to the case-history, the affection of the gland was secondary to the orbital involvement.

CIRINCIONE.

BASSO (500, Chronic affections of the lachrymal passages studied by means of extirpation of the lachrymal sac and duct) found 22 per cent. of simple stenosis without actual occlusion of the lumen in 22 per cent. of forty-one lachrymal sacs and ducts which he had extirpated; obliteration of the lachrymal canal at the upper end with permeability below the obliterated point in 8 per cent.; obliteration of the lower segment of the canal in 40 per cent.; finally, total obliteration of the canal with change into a fibrous cord. In one case of simple epiphora, histologic examination showed advanced infiltration and œdema of the canal-walls in consequence of congestion. Simple dacryo-cystitis is accompanied by infiltration and hyperplasia of the mucous membrane, with proliferation of vessels and detachment of the epithelium, the changes being more marked at the upper end of the canal. In dacryo-cystitis with reducible tumor of the sac, the most common change is an isolated cicatricial obliteration of the lower end of the canal, and in most of the cases examined there were conditions present which favored obliteration in this segment. In mucocele there is a slow process of chronic inflammation with hyperplasia of the mucous membrane and epithelium of the sac. The contents have the characteristic properties of the normal secretion. In empyema, on the other hand, there is a predominance of inflammation with granulations, loss of epithelium, and pus production. CIRINCIONE.

RICHTER (502, Furuncle of the lachrymal caruncle) reports a case of furuncle of the lachrymal caruncle which developed

after injury. In the pus, streptococci and staphylococci were found, with rods closely resembling xerosis bacilli. The case was undoubtedly one of infection with pyogenic micro-organisms.

X.—ORBIT AND ACCESSORY CAVITIES.

503. SOEDERLINDH. **Grippe tenonitis followed by optic atrophy.** *Soc. d'opht. de Paris*, 4 April, 1905.

504. AXENFELD, Th. **Kroenlein's osteo-plastic resection of the orbit for the treatment of retrobulbar tumors.** *Muench. med. Wochensch.*, 1905, No. 23.

505. PIEHL. **A slight modification of the skin incision in Kroenlein's operation.** *Centralbl. f. prakt. Augenh.*, xxix., p. 161.

506. BARDELLI, L. **On the diagnosis of echinococcus of the orbit.** *Ann. di Ottalm.*, 5–6, 1905.

507. MAERZ, M. **Report on four cases of exophthalmus.** *In. Diss.*, Giessen, 1905.

508. CRAWFORD, L. **Case of exophthalmus in the newly-born.** *Lancet*, Nov. 19, 1904.

509. BORLAND, H. **Case of exophthalmus in the newly-born.** *Lancet*, Nov. 12, 1905.

510. SPIELER. **Association of adenoids with exophthalmus.** *Deutsche med Wochensch.*, 1905, No. 35, 1415.

511. KALT. **Traumatic dislocation of the globe into the maxillary and nasal cavities.** *Soc. d'opht. de Paris*, 14 Mars, 1905.

512. ROHMER. **Double encephalocele of facial type at the inner angle of the orbit.** *Arch. d'opht.*, xxv., pp. 329, 512.

513. ALEXANDER, F. **Two rare cases of eye complications in empyema of the accessory sinuses.** *Muench. med. Wochensch.*, 1905, 29, 1415.

514. BOSSALINO, D. **Hemorrhagic cysts of the frontal sinus.** *Ann. di Ottalm.*, 5–6, 1905.

AXENFELD (504, Kroenlein's osteo-plastic resection of the orbit for the treatment of retrobulbar tumors) admits that tumors visible alongside of the globe can often be removed from in front, without sacrificing the eye, if they are not diffuse and can be operated radically. If they extend into the depths, Kroenlein's operation is the method of election in these cases as well as for all retrobulbar growths, the character of which cannot usually be determined with accuracy. In retrobulbar inflammations, too, whether metastatic or by continuity, the temporary resection of the outer orbital wall is of great advantage. If pus is not found at once it is not advisable to search around in the orbital tissues, but the peri-orbita should be carefully loosened. In this way affections of the accessory cavities

are often discovered and cured. Axenfeld also recommends the use of hand-lamps, and of peculiar retractors, shaped like flat spoons, to hold back the orbital fat and shield the globe.

PIEHL (505, A slight modification of the skin incision in Kroenlein's operation) recommends a new skin incision for the Kroenlein operation. It consists of two connected halves. The orbital incision begins at the outer third of the brow, and runs with a curve with the concavity inward and downward, to the outer bony margin of the orbit at the level of the zygoma. The temporal incision begins at the end of the first cut, and runs almost at right angles along the upper edge of the zygoma.

BARDELLI (506, On the diagnosis of echinococcus of the orbit) observed a case of echinococcus cyst of the orbit, which showed, in addition to the usual symptoms of an orbital tumor, papillitis and orbital pain. Attention is called to the importance of a blood examination, which in this case showed a marked increase in polynuclear eosinophiles, and aroused suspicion of the presence of an echinococcus. CIRINCIONE.

MAERZ (507, Report on four cases of exophthalmus) describes a case of exophthalmus, probably due to varicose veins of the orbit, which was unilateral and intermittent, and was increased by stooping. Vascular murmurs were not detected. The pupil of the affected eye was at times contracted, and, again, normal. A central scotoma was probably due to the abuse of alcohol by the patient. The second case was that of a woman of fifty-one, who had had cough and snuffles for a long time, and developed unilateral exophthalmus, which subsided under a moist compress after large masses of muco-pus had been expelled, probably from the accessory cavities. During the clinical examination, markedly dilated venous plexuses appeared at the inner canthus, in the lower fornix, and above and below the cornea, and later disappeared spontaneously. The third patient, aged twenty-nine, had suffered with left-sided, pre-menstrual headache, and suddenly developed left exophthalmus with slight ptosis, without evident cause. Under a moist compress the symptoms disappeared, and the next menstruation was not attended by headaches. The fourth case, that of a woman of forty-eight, did not run as favorable a course as the first three. An exploratory operation (Kroenlein) revealed no cause for the gradual blindness and

accompanying exophthalmus. Soon after the other eye was affected in a similar manner, and the case was diagnosed as one of probable brain tumor.

CRAWFORD (508, Case of exophthalmus in the newly-born) saw a marked exophthalmus in a child soon after a normal delivery. This disappeared without any apparent injury to vision. DEVEREUX MARSHALL.

BORLAND'S (509, Case of exophthalmus in the newly-born) patient was a newly-born child of a healthy mother. The delivery was normal; forceps were not used. Several hours after delivery a subconjunctival effusion of blood was noted in the right eye, Next day there was a protrusion of the globe outward, forward, and downward, with paralysis of the superior rectus. The symptoms eventually disappeared, and the child made a complete recovery. DEVEREUX MARSHALL.

(These two cases suggest orbital hemorrhage due to infantile scurvy, or Barlow's disease.—P. H. F.)

SPIELER (510, Association of adenoids with exophthalmus) believes that exophthalmus may be caused by retrobulbar stasis in the lymphatics due to adenoid growths.

ALEXANDER (513, Two rare cases of eye complications in empyema of the accessory sinuses) saw intraocular changes, consisting in papillitis and abscess of the vitreous, which developed after surgical procedures for empyema of the accessory cavities. The disturbances were of a metatastic nature, according to Alexander.

BOSSALINO (514, Hemorrhagic cysts of the frontal sinus) reports the case of a man of twenty-nine who had been struck on the right eye, two years before, by a large piece of iron. There was a persistent but reducible exophthalmus of 16*mm.* The eye was displaced outwards. The right frontal region was prominent. Below the upper wall of the orbit a deep swelling could be made out. An incision through the entire extent of the upper lid showed that the tumor involved the entire upper orbital wall and part of the outer wall as well. After the removal of a part above the upper lid, a cavity between the bones was laid bare, in which a brownish tumor was imbedded. This was extirpated, and recovery took place. Histologic examination showed that the mass was a blood cyst, which had

developed in the frontal sinus in consequence of an injury which the patient had suffered some time before. CIRINCIONE.

XI.—CONJUNCTIVA.

515. DIMMER, F. **The etiology of spring catarrh.** *Wiener klin. Wochensch.*, 2, 1905.

516. VERHOEFF, G., and DERBY, G. **Pathologic histology of Parinaud's conjunctivitis.** *Klin. Monatsbl. f. Augenh.*, xliii., i., p. 705.

517. SCHWARZ, O. **Treatment of hay-fever conjunctivitis.** *Muench. med. Wochensch.*, 1905, 22, p. 1040.

518. KUHNT. **Note on the treatment of hay-fever conjunctivitis.** *Deutsche med. Wochensch.*, 1905, 34, p. 1345.

519. JENSEN, E. **Cases of peculiar conjunctivitis.** *Hospitalstid.*, p. 473, 1905.

520. LUNDSGAARD, K. **Diplo-bacillus conjunctivitis and its treatment.** *Hospitalstid.*, 1905, p. 249.

521. PFEIFFER, R., and KUHNT, H. **Note on the bacteriology of trachoma.** *Zeitsch. f. Augenh.*, 13, 4, p. 321.

522. JUNIUS. **On the diagnosis of trachoma.** *Muench. med. Wochensch.*, 1905, No. 16.

523. TERSON, A. **The contagion of trachoma.** *Soc. d'opht. de Paris*, 14 Mars, 1905.

524. CHRIST. **The etiology of croupous conjunctivitis.** *Beitr. z. Augenh.*, No. 63, p. 11.

525. VILLARD, H. **Tuberculosis of the conjunctiva.** *Ann. d'oculist.*, cxxxiii., p. 271.

526. BALLABAN, TH. **Hyaline degeneration of the ocular conjunctiva.** *Arch. f. Augenh.*, lii., 1–2, p. 205.

527. RUMSCHEWITSCH, K. **Amyloid degeneration of the upper fornix-fold of both eyes.** *Westn. Opht.*, 1905, No. 3.

528. OETTINGER. **Case of congestive hemorrhages of the face and conjunctiva after violent vomiting.** *Deutsche med. Wochensch.*, No. 35, p. 1410, 1905.

529. DIETERICH, G. **Report on lime-burns of the eye observed from 1893 to 1903.** *In. Diss.*, Jena, 1905.

530. SACHSALBER, A. **Etiology of pinguecula and pterygium.** *Wiener klin. Wochensch.*, 1905, No. 8.

531. CARLINI, V. **Angiomata of the conjunctiva.** *Ann. di Ottalm.*, 5, 1905.

532. ISCHREYT. **On epibulbar carcinoma.** *Zeitsch. f. Augenh.*, xiii., 5, p. 409.

533. v. HYMMEN, H. **The oncology of the palpebral conjunctiva. 1. Lymphangioma cavernosum. 2. Round-cell sarcoma of the conjunctiva tarsi.** *Klin. Monatsbl.*, xliii., 1, p. 512.

DIMMER (515, The etiology of spring catarrh) bases his views on the observations of the dermatologist, Kreibich, who describes

changes in the lid-fissure area of the conjunctiva resembling spring catarrh in three patients who suffered from skin eruptions due to the effect of strong sunlight. The conjunctival swelling disappeared in fourteen days under an occlusive bandage, and this was corroborated by another case. Dimmer believes that spring catarrh is caused by the chemical action of the sun's rays. Geographic studies of the occurrence of this disease show that it is rare in cloudy regions. In pinguecula, too, illumination is probably an etiologic factor.

VERHOEFF and DERBY (516, Pathologic histology of Parinaud's conjunctivitis) have made a further study of Parinaud's conjunctivitis which corresponds with their earlier findings. The most important change is a marked cell necrosis in the subconjunctival tissue with lymph-cell and phagocytic infiltration. There is also a chronic inflammatory reaction in the deeper tissues leading to organization and the production of new connective tissue. In their new case the necrosis was more marked and sharply defined. In the necrotic foci especially, which appear to the naked eye as little yellow areas, Verhoeff and Derby see the characteristic signs of Parinaud's disease. Goldzieher's terms of lymphoma, lymphoma-conjunctivitis and lymphadenitis are not appropriate. The correct view is that of Leber, who attributes the changes to lymphoid hypertrophy.

SCHWARZ (517, Treatment of hay-fever conjunctivitis), after using Dunbar's pollantin without any result, saw marked improvement of the conjunctival affection in hay-fever from the use of solutions of cocain and suprarenin.

KUHNT (518, Note on the treatment of hay-fever conjunctivitis) had a complete cure of conjunctivitis in hay-fever from insufflation of anæsthesin. It is to be noted that the nasal symptoms were also relieved by the treatment of the eye.

PFEIFFER and KUHNT (521, Note on the bacteriology of trachoma) made a filtrate from the fornix folds in trachoma, but were unable to infect the healthy conjunctiva with it.

CHRIST (524, The etiology of croupous conjunctivitis) observed five cases of croupous conjunctivitis, and considers it a definite clinical entity with pathognomonic symptoms. The present status of bacteriology does not invalidate this view or allow us to use a practical division of the various disease forms according

to their ætiologic factors. In spite of this, careful bacteriologic examination should be made in every case, as the germ etiology is of importance for treatment, prognosis, and prophylaxis.

VILLARD's (525, Tuberculosis of the conjunctiva) article is a complete review of the work on tuberculosis of the conjunctiva, the clinical manifestations, corneal complications, affections of the lachrymal passages and sclera, and the generalization of the disease. BERGER.

BALLABAN (526, Hyaline degeneration of the ocular conjunctiva) extirpated a yellowish-red, hard, elastic tumor which had developed in the course of three months between the cornea and the external canthus, was 0.5*cm* high, and freely movable on the sclera. Microscopic examination showed that the mass was conjunctiva in a state of hyaline degeneration. The hyaline lay principally in the walls of the vessels, but also between the connective-tissue fascicles. Ballaban makes a sharp distinction between hyalin and amyloid. He does not think it probable that there was a primary inflammation of a chronic type or that the vessels' walls produced hyalin. The latter was more probably deposited in the walls and gave rise to secondary inflammation.

SACHSALBER (530, Etiology of pinguecula and pterygium) finds that patients with pinguecula have not only been unusually exposed to sunlight, but that they must have been subjected to some special causes of chronic catarrh, as the latter complication is always present. As a further individual predisposition to pinguecula, Sachsalber is disposed to attach importance to the excessive development of lanugo hairs at the inner canthus.

CARLINI (531, Angiomata of the conjunctiva) describes a small globular tumor, about the size of a pea, attached by a short pedicle of conjunctiva to the upper margin of the tarsus. Microscopic examination revealed the structure of a cavernous angioma. CIRINCIONE.

ISCHREYT (532, Epibulbar carcinoma) examined two epibulbar carcinomata which had extended about equally over the cornea and sclera. The first was, however, an epithelioma of horny consistency, a recurrence of a primary conjunctival carcinoma; the second a small-celled carcinoma, not horny, and a recurrence of a primary carcinoma of the lid with epibulbar proliferation. Ischreyt considers the question of the relation between

round-cell infiltration and epithelial proliferation. The latter seems to disperse the round-cell infiltration except in tissues, like the centre of the cornea, where there are no vessels, but the round-cell infiltration seems to prepare the way for the epithelial proliferation. Both specimens showed lymph-angiectasis. In one, cysts were found in the ciliary processes. Forty-seven cases are cited from literature in regard to the frequency of perforation of the globe in epibulbar cancer. The histologic structure seems a less decisive factor in this complication than the location of the new growth. The limbus is the most dangerous point of origin, and the perforating ciliary vessels the easiest site of perforation.

HYMMEN (533, The oncology of the palpebral conjunctiva) describes a rare lymph-angioma cavernosum, which had developed in the course of half a year in a woman of forty-one. It appeared on the conjunctival surface of the lower lid as a small flattened tumor, with a pedicle of dark-red hue and a grayish tip, which protruded between the closed lids. There was no recurrence after extirpation. The second case is also a curiosity. In a woman of eighty-one there appeared, after two extirpations of malignant growths, within two years, five small tumors on the conjunctival surface of the upper tarsus. These were 3 to 4*mm* broad and 2*mm* high, bled easily, and had the feel of cysts. They were dark red in color. There was a brownish pigmentation of a number of more or less distant points of the conjunctiva, and the centre of the cornea was eroded. Free extirpation extending into sound tissue was carried out, and no recurrence took place. Microscopic examination showed a large round-cell sarcoma of the submucous tissue, with slight pigmentation.

XII.—CORNEA, SCLERA, AND ANTERIOR CHAMBER.

534. DIMMER. **A peculiar variety of corneal change (fold formation) following interstitial keratitis.** *Zeitsch. f. Augenh.*, xiii., p. 635.

535. CONSIGLIO. **A long interval between attacks of keratitis parenchymatosa in the right and left eye.** *Beit. z. Augenh.*, 63, p. 9.

536. DURANTE, F. **Resection of the Gasserian ganglion.** *Riv. Ital. di Ottalm.*, Naples, 5–6, 1905.

537. STEPHENSON, SYDNEY. **Traumatic keratitis in the new-born.** *Ophth'scope*, Jan., 1905.

538. DIMMER. **On a form of corneal inflammation resembling keratitis nummularis.** *Zeitsch. f. Augenh.*, xiii., p. 621.

539. WEHRLI, E. **Nodular keratitis (Groenouw) a primary, isolated, chronic, tuberculous affection of the anterior layers of the cornea. Lupus corneæ.** *Zeitsch. f. Augenh.*, xiii., 4, p. 322.

540. MANZUTTI, G. **Another case of keratitis nodosa.** *Ann. di Ottalm.*, 1–2, 1905.

541. CHESNEAU, M. **Sclerosing parenchymatous keratitis of probably tuberculous nature.** *Ann. di Ocul.*, lxxxiii., p. 412.

542. OPPENHEIMER, E. **Varicella of the cornea.** *Deutsche med. Wochensch.*, 1905, No. 21, p. 833.

543. HANKE, V. **On the significance of annular abscess of the cornea.** *Klin. Monatsbl. f. Augenh.*, xliii., 1, p. 724.

544. ZUR NEDDEN. **On some rare bacteriologic findings in serpent ulcer.** *Arch. f. Augenh.*, lii., 1–2, p. 143.

545. ERDMANN, P. **Diplobacillus ulcer of the cornea. The resistance of the diplobacillus to desiccation in secretions.** *Klin. Monatsbl. f. Augenh.*, xliii., 1, p. 561.

546. TERRIEN, F. **Miliary abscesses developing in the corneal scar after cataract operation.** *Arch. d'opht.*, xxv., p. 360.

547. SACHSALBER, A. **Corneal changes in ulcerative processes.** *Zeitsch. f. Augenh.*, xiii., p. 640.

548. TERSON, A. **Gumma of the cornea.** *Arch. d'opht.*, xxv., p. 265.

549. STOEWER. **A new operation for keratoconus.** *Klin. Monatsbl. f. Augenh.*, xliv., i., p. 474.

550. VALUDE, E. **Keratoconus in pregnancy.** *Riv. Ital. di Ottalm.*, No. 2, 1905.

551. GASPARRINI, C. **Primary carcinoma of the cornea.** *Ann. di Ottalm.*, 1–2, 1905.

552. GOLESCEANO. **Relapsing scleritis.** *Recueil d'opht.*, xxvii., 265.

553. EVANS, T. **Hydatid cyst of the anterior chamber.** *Ophth'scope* Jan., 1905.

DIMMER [534, A peculiar variety of corneal change (fold formation) following interstitial keratitis] found almost completely transparent posterior layers of the cornea folded in concentric semicircles on the posterior surface. The only way in which this was detected was in consequence of peculiar reflexes and refraction changes. It is probable that the deeper layers were swollen in the course of a parenchymatous inflammation, and that the thickened membrane was thrown into folds when the cornea cleared up.

CONSIGLIO'S (535, A long interval between attacks of keratitis parenchymatosa in the right and left eye) patient was eighteen when the right eye was affected by parenchymatous keratitis. The other eye was not involved until twenty-six years later.

DURANTE (536, Resection of the Gasserian ganglion) reports

the case of a woman who had had the Gasserian ganglion removed for obstinate neuralgia. On the next day the cornea, which had been left uncovered, showed infiltration and commencing ulceration. This promptly disappeared under hot compresses mydriatics, and a protective bandage. CIRINCIONE.

STEPHENSON (537, Traumatic keratitis in the new-born) reviews the literature and draws the following conclusions: (1) Almost all cases of traumatic keratitis in the newly-born were due to severe instrumental delivery. The injury is generally unilateral, and there are complications in the form of abrasions of the skin, bruises, subconjunctival and retinal hemorrhages, hyphæma, etc. (2) The form of the corneal opacity is more or less characteristic. Stephenson then reports the following case, the first to be seen at the Queen Charlotte's Hospital, although 1200 births take place there annually, and forceps delivery is performed in at least 10% of the cases, and corneal injuries are watched for. The mother was aged forty-one, and had a generally contracted pelvis. The forceps were applied with difficulty, one blade being in apposition to the outer angle of the left orbit. Over the left frontal bone a large bruise was found, with marked swelling of the lids. Next day the cornea was found to be uniformly smoky, and a subconjunctival hemorrhage was seen. The anterior corneal epithelium was stippled, like shagreen. No suppuration had occurred. After ten days the only trace of an injury was a small linear opacity running vertically in the outer part of the cornea. Three months after birth this condition was found unchanged. A second case of this sort in a child of twelve is reported. The appearance of the opacity was characteristic, and on questioning it was found that a forceps had been applied at birth, and the head of the child badly bruised. Scars were still visible on the head, and there was marked irregular astigmatism. DEVEREUX MARSHALL.

DIMMER'S (538, On a form of corneal inflammation resembling keratitis nummularis) not quite uniform cases showed pain, photophobia, and lachrymation, but without actual conjunctival secretion, followed by the development of peculiar infiltrates in the superficial layers of the cornea, but also in the middle layers, measuring 1*mm* to 1.5*mm*. The middle of the cornea was the principal seat of the affection. Toward the margin there is a more concentric arrangement, and in both locations a tendency

to confluence. The infiltrations are sharply defined ; the corneal tissue lying between the individual spots is occupied by a fine stippled opacity. While many of these foci are eventually absorbed, a development of round shallow ulcers is observed in others. The deeper structures of the eye are not affected, and vision may be normal in spite of the opacities. The clinical course of the disease is slow, sluggish, lasting for weeks. Compared with keratits superficialis (Fuchs), k. maculosa (Reuss), and k. nummularis (Stellwag), the last-named affection shows the greatest correspondence.

WEHRLI [539, Nodular keratitis (Groenouw) a primary, isolated, chronic, tuberculous affection of the anterior layers of the cornea; lupus corneæ] observed a peculiar corneal affection with unusually chronic course, persisting for years. The central portion and most superficial layers were attacked by the formation of non-vascularized nodules, which lifted up the intact epithelium over large areas in irregular, isolated patches. The disease was bilateral. Both patients were brothers, and strong, otherwise healthy peasants, but there was a history of tuberculosis in early youth. After curetting large nodules, Wehrli was convinced that he had to deal with lupus of the cornea. The development of this affection is prevented by the antibacterial action of light, and can be favorably influenced by repeated paracentesis of the anterior chamber. Iodoform and tuberculin should also be administered.

MANZUTTI'S (540, Another case of keratitis nodosa) patient had photophobia with slight diminution of vision since six years. The conjunctivæ were normal. The cornea showed no changes at the periphery, but in the central portion there were very fine closely sown dots forming a disk of opacity over the pupillary area. The sensibility of the cornea was diminished at the centre. CIRINCIONE.

OPPENHEIMER (542, Varicella of the cornea) describes the case of a child with varicella eruption on the cornea. There was a small vesicle of about pinhead size to which threads of mucus were attached. This broke down, later on, forming a shallow, grayish ulcer, which soon cleared.

HANKE (543, On the significance of annular abscess of the cornea) explains several points in his article on the significance of annular abscess of the cornea, which had evidently been misconstrued by Morax.

Zur Nedden (544, Some rare bacteriologic findings in serpent ulcer) claims that it is not permissible to label a clinical picture of ulcus serpens, without further examination, as pneumococcus ulcer. He reports three cases in which, quite unexpectedly, the hay-bacillus (B. subtilis) was found instead of the pneumococcus. Even in these cases, keratotomy proved of service.

Erdmann (545, Diplobacillus ulcer of the cornea. The resistance of the diplobacillus to desiccation in secretions) found in cases of diplobacillus conjunctivitis, the most common of the infectious forms, not only marginal corneal infiltrates and ulcers, but malignant types resembling hypopyon keratitis, and requiring to be treated accordingly. Other cases healed under very simple measures. A history of previous injury could only be obtained in a very few cases, but Erdmann thinks this factor was almost invariably present, the trauma having been forgotten on account of the length of time which had elapsed or perhaps, too, because it was apparently negligible. As even the deep ulcers heal most readily with zinc sulphate, Erdmann lays stress on the diagnostic importance of a bacteriologic examination. Even the seventh generation of diplobacilli is pathogenic for the healthy human conjunctiva. Interesting experiments with bits of linen cloth dipped in secretions containing the diplobacillus and allowed to dry showed that at room temperature these germs remain virulent for at least fifty-four hours and are capable of producing spores for eleven days. Diplobacilli were found, in cases of normal conjunctiva, as pathogenic germs in the nose and as harmless parasites on the conjunctiva.

Terrien (546, Miliary abscesses developing in the corneal scar after cataract operation) made experiments on dogs' eyes to study the course of healing of the corneal wound after cataract operation, and noticed the frequent occurrence of small miliary abscesses in the newly formed epithelium closing the section. These abscesses appear only in the days immediately following operation. There are no clinical symptoms. No cases have been observed in man, although it is possible that they may explain certain infections of the globe occurring without apparent cause.

Berger.

Sachsalber (547, Corneal changes in ulcerative processes), experimented on rabbits by inflicting wounds and corrosions of

the cornea and allowing the animals to die of inanition. The latter factor has the most adverse influence on the course of ulceration, without being able to prevent the reconstructive functions of the organism. In these cases there was a marked absence of circumcorneal injection and chemosis, with a peculiar dryness and dulness of the corneal surface. "Unintentional" suppuration was frequent. The physical tension to which the cornea is subject, has a marked influence on the form of the scar elements. The fixed corneal corpuscles which play the major rôle in scar formation, and where there are no vessels, act alone to form a scar in the stroma of the cornea, develop by multiplication of the nuclei alone, the protoplasm being formed by the newly formed nuclei. By mechanical pressure, the young, irregular fibrillæ are fitted to the general arrangement of the lamellæ. Sachsalber then discusses changes of Descemet's membrane, and degenerative changes in the corneal scar.

In order to remove the diseased tissue in keratoconus and to attain as favorable conditions as possible for prompt healing of the defects, STOEWER (549, A new operation for keratoconus) removes the prominence with a knife, and covers it with a double conjunctival flap. After four months the corneal curvature was normal, and the seat of the conus was occupied by a grayish macula, which did not suggest in any way its origin from a conjunctival flap; vision had increased sixty-fold. Microscopic examination of the resected apex showed connective-tissue degeneration of the corneal lamellæ. Stower concludes that a chronic inflammatory process is the underlying cause of keratoconus. The epithelium was mostly normal, but thickened in a few places. There were a few cysts containing granular debris. Bowman's membrane was perforated at one or two points. In the tissue of the conus numerous fissures, probably lymph-spaces, were noticed.

VALUDE (550, Keratoconus in pregnancy) reports a case of double keratoconus occurring in the course of a pregnancy, which was undoubtedly due to the disturbances of nutrition consequent on gestation. CIRINCIONE.

EVANS'S (552, Hydatid cyst of the anterior chamber) patient was a child of six from Sydney. In the anterior chamber there was a pearly-white cyst, apparently floating free. The cyst was removed as if it had been a cataract, and the child recovered.

Examination showed neither hooklets nor hydatid cysts, but the cyst wall was characteristic, and closely resembled that of a cysticercus. DEVEREUX MARSHALL.

Sections XIII.–XVIII. Reviewed by DR. O. BRECHT, Stettin.

XIII.—LENS.

553. ZIRM, E. (Olmuetz). **On our present knowledge of the nutrition of the lens.** *Wien. klin. Wochensch.*, 1905, No. 12.

554. BUSINELLI. **Artificial ripening of cataract.** *Riv. Ital. di Ottalm.*, 5–6.

555. LEZENIUS. **Etiology of zonular cataract.** *St. Petersb. med. Wochensch.*, 1905, No. 20–21.

556. ASK, F. **The operative treatment of zonular cataract.** *Klin. Monatsb. f. Augenheilk.*, xliii., 1, p. 480.

557. STEIN, H. **Unilateral perinuclear cataract.** *Beitr. z. Augenh.*, xliii., 1, No. 63, p. 42.

558. SEGAL-NOCHIM. **On congenital perinuclear cataract.** *In. Diss.*, Koenigsberg, 1905.

559. PASCHEFF. **Iridotomy in cataract extraction.** *Arch. d'opht.*, xxv., p. 244.

560. ALBERTOTTI. **Treatment of cataract.** *Festsch. f. Hirschb.*, 1905.

561. DUETZER, A. **Choroidal detachment after cataract extraction.** *In. Diss.*, Giessen, 1905.

562. CASALI, A. **Ætiology of spontaneous dislocation of the lens.** *Ann. di Ottalm.*, 5–6, 1905.

563. PETERS, A. **The pathogenesis of cataract.** *Klin. Monatsbl.*, xliii., 621.

ZIRM (553, On our present knowledge of the nutrition of the lens) reports having operated on six cases of tetany-cataract—four in women of about thirty. In every case there was this remarkable coincidence that the patients had lost their hair and nails, showing trophic disturbances of epithelial structures like the lens. Of the six cases, four were in the last months of pregnancy. The toxines causing the tetany were probably of uterine origin.

LEZENIUS (555, Etiology of zonular cataract) claims that zonular cataract may be congenital, but that in the great majority of cases it develops in the first year or two. Rachitis is an important etiologic factor by causing convulsions which lead to the formation of cataract. HORSTMANN.

ASK (556, The operative treatment of zonular cataract)

opposes schematic treatment in zonular cataract, whether by iridectomy, discission, or extraction, and pleads for individualization. It is of importance to consider the patient's industrial future. Ask advises iridectomy if sufficient vision for the ordinary purposes of daily life can be obtained with the stenopæic slit under mydriasis with full correction of the ametropia. In case of high myopia, one lens is to be removed, allowing one eye to be used for near work and the other for distant vision. In high myopia and extensive opacity both lenses must, of course, be removed.

STEIN (557, Unilateral perinuclear cataract) reports five cases of unilateral perinuclear cataract. In one instance this change was directly due to a mechanical injury. In the other cases the zonular cataract was a secondary development, as clear lens fibres developed about the cloudy nucleus. HORSTMANN.

ALBERTOTTI'S (560, Treatment of cataract) article is a translation of a work by Marco da Sarano on the treatment of cataract, written in the fifteenth century. HORSTMANN.

DUETZER (561, Choroidal detachment after cataract extraction) reports two cases of choroidal detachment and one of choroidal prolapse after cataract extraction. The rarity of this complication in the Giessen clinic is explained by the uniform employment of the pressure bandage after operation.

CASALI (562, Ætiology of spontaneous dislocation of the lens) reports a case of complete bilateral dislocation of the lens in an emmetropic eye, in an individual of seventy. There was no history of previous disease or injury of the eye. In regard to the etiology of this case and of others of spontaneous luxation, the author attaches importance to the agency of general arteriosclerosis, which leads to fluidification of the vitreous and weakening of the zonule. CIRINCIONE.

XIV.—IRIS.

564. FEJER, J. **Developmental anomalies of the iris.** *Arch. f. Augenh.*, lii., 16.

565. GENDRON. **Relapsing gonorrhœal iritis.** *L' opht. provinc.*, 1905, 1.

566. BAYLAC. **Double iritis in a case of gonorrhœal infection.** *Clinique opht.*, 1905, p. 84.

567. CAMPBELL. **Iritis due to oral sepsis.** *Lancet*, 1905, p. 4275.

568. WOELFFLIN, E. **Pathogenesis of cysts of the iris angle.** *Arch. f. Augenh.*, lii., p. 223.

569. STOCK, W. **Epithelial tumor of the iris, originating in the posterior pigment epithelium.** *Klin. Monatsbl. f. Aug.*, xliii., p. 503.

570. CUTLER, C. **Metastatic carcinoma of iris and ciliary body.** ARCH. OF OPHTH., xxxiv., 4, p. 392.

FEJER (564, Developmental anomalies of the iris) describes an extensive ectropium uveæ in an otherwise normal eye of a girl aged six, and lays stress on the fact that the brown zone about the pupil is thickened, and not thinned, as claimed by some authors. A histologic examination could not be made.

CAMPBELL (567, Iritis due to oral sepsis) reports three cases of iritis in which syphilis, rheumatism, and tuberculosis could be excluded. The oral cavity was in a very bad state of sepsis. After this had been cured the iritis disappeared.

HORSTMANN.

WOELFFLIN (568, Pathogenesis of cysts of the iris) describes cysts of the anterior chamber in the eye of a man of twenty-five, who had received a penetrating punctured wound of the globe eighteen years before. A peculiar feature was the development of a cyst of the wound canal of the sclera communicating with the anterior and posterior chamber. Woelfflin follows Rothmund's theory of the development of these cysts from inversions of the endothelial lining.

STOCK (569, Epithelial tumor of the iris) describes a tumor which he believes to have been a papillary epithelioma. It appeared to grow from the posterior surface of the iris, projecting beyond the pupillary margin, and remaining unaltered in size during the six weeks it was under observation. The patient, a man of forty-six, died of pulmonary tuberculosis.

CUTLER (570, Metastatic carcinoma of iris and ciliary body) observed a gray mass in the iris of the left eye of a woman, aged thirty-three, after the removal of a carcinoma of the breast. General malignant disease had already developed. Histologic examination of the globe revealed a carcinoma of the iris and ciliary body, of rather complex, atypical structure.

ABELSDORFF.

XV.—CHOROID.

571. Ohm, J. **On rupture of the choroid.** *In. Diss.*, Giessen, 1905.

572. De Lapersonne. **Rupture of the choroid.** *Riv. Ital. di Ottalm.*, 5-6, 1905.

573. Axenfeld. **Solitary tuberculosis of the choroid.** *Med. Klinik*, 1905, 16.

574. Manch, J. **Benign, non-progressive tumor-like structure in the fundus.** *Klin. Monatsbl. f. Aug.*, xlii., p. 649.

575. Oeller, J. **Double carcinoma of the choroid with cure in the right eye of a detachment of the retina which had affected both eyes.** *Arch. f. Augenh.*, lii., p. 121.

576. Gelpke. **Case of metastatic carcinoma of the choroid.** *Klin. Monatsbl. f. Aug.*, xliii., p. 492.

577. Popow, W. **A neglected case of melanosarcoma of the choroid.** *Westn. Ophth.*, 1905, 3, 276.

578. Grimbach, R. **Clinical study and prognosis of uveal sarcoma.** *In. Diss.*, Giessen, 1905.

579. Fehr. **Angioma of the choroid.** *Centralbl. f. prakt. Augenh.*, xxix., 161.

580. Santucci, J. **Pathologic and histologic changes in suppurative choroiditis.** *Ann. di Ottalm.*, 5-6, 1905.

Ohm (571, Rupture of the choroid) gives a review of our present knowledge of rupture of the choroid, and reports in detail five cases observed at the Giessen eye-clinic.

Manch (574, Progressive tumor-like structure in the fundus) reports the case of a girl of eighteen, who had been under observation for seven years. On the otherwise normal papilla there was a shiny, bluish-white connective-tissue deposit. At the macula there was an intensely black round spot, surrounded by a washed-out area of much lighter color, and irregular pigment deposits. Three disk-widths farther to the temporal side there was a tumor-like structure running forward horizontally to the extreme limit of the visible fundus. The growth was grayish-white, solid, and apparently immovable, covered by the retina, and showing several pigment patches and white areas of atrophy. The picture remained unchanged during seven years. The process probably began in the choroid and affected the retina secondarily. Horstmann.

Oeller (575, Double carcinoma of the choroid with cure in the right eye of a detachment of the retina which had affected both eyes) reports the case of a woman of forty-seven, who developed carcinoma of the choroid four years after an operation

for cancer of the breast. The growth was the usual one, which had become epibulbar in the right eye, and had proliferated into the optic nerve of the left. In the right eye, repeated incisions according to Deutschmann's method were followed by a reattachment of the retina in places.

GELPKE (576, Case of metastatic carcinoma of the choroid) reports the interesting case-history of a woman of fifty-one, who had suffered for years with a goitre. This underwent cancerous degeneration, and metastasis took place in the left eye, the lungs, bronchial glands, pleura, liver, spleen, and kidneys. The carcinoma of the choroid was not disciform, as usual, but projected out into the vitreous.

FEHR (579, Angioma of the choroid) describes an angioma of the choroid, which had been kept under ophthalmoscopic observation for twenty years. At first the picture was that of a flat, nodular, grayish-white tumor, with glittering spots, about 5×3 p. d. in size, and 0.6–1.2*mm* high. The mass gradually increased in size, and the eye was lost without inflammatory signs. When the latter appeared the globe was removed. A disciform angioma was found, measuring $12 \times 6 \times 3mm$, and surrounded by a dense fibrous capsule. The differential diagnosis between angioma, sarcoma, and solitary tubercle is of practical importance. The angioma is distinguished from the last by gradual onset, remaining stationary for a long time, without inflammatory reaction or miliary tubercles in the neighborhood. Color alone is the means of excluding a sarcoma. The latter generally has a brown, yellow, or variegated hue, while angioma is white or bluish-white, on account of the thick capsule.

XVI.—VITREOUS.

581. PATTERSON. **Concerning the relationship of nasal disorders to vitreous opacities.** *Ophth. Record*, 1905, p. 105.

582. PATON and PARAMORE. **Vitreous hemorrhages.** *Lancet*, 1905, p. 4287.

PATON and PARAMORE (582, Vitreous hemorrhages) observed that vitreous hemorrhages, which occur in healthy young persons, are accompanied by an increased coagulability of the blood. In such cases the administration of citric acid is indicated, while treatment with calcium salts is irrational. HORSTMANN.

XVII.—GLAUCOMA.

583. MASLENIKOW, A. **Diurnal variations of tension in glaucoma.** *Westn. Ophth.*, 1905, No. 3, p. 237.

584. LEBER, TH. **On filtration in the eye and its rôle in the pathogenesis of glaucoma.** *Ann. d'oculist.*, cxxxiii., p. 401.

585. HEINE. **Cyclodialysis, a new operation for glaucoma.** *Deutsche med. Wochensch.*, 1905, No. 21.

586. HABERKAMP. **The simplest glaucoma operation.** *Ophth. Klinik*, 129, 1905.

587. CHENCY. **The question of iridectomy in glaucoma simplex.** *Ophthalmology*, 1905, p. 412.

588. HAMILTON. **Note on the treatment of simple glaucoma.** *Ophthalmoscope*, 1905, p. 225.

MASLENIKOW (583, Diurnal variations of tension in glaucoma) raises the question whether pressure in glaucoma remains unchanged in the course of the day, or whether there are diurnal variations depending on certain periodicity of organic phenomena, such as pulse, respiration, arterial pressure, etc. A series of tonometric tests was made with Maklakow's tonometer in normal eyes, and in twenty-two with glaucoma. The tests were made regularly every morning and night. Tension of the glaucomatous eyes was determined before and after myotics, and before and after iridectomy. Tension was found to be higher in the morning, but in normal eyes the difference is slight or inappreciable. In no case was the evening tension higher. In glaucoma, the morning tension is also higher than at night, but the difference is marked, up to 22*mm* Hg. Myotics and iridectomy lower the absolute tension, but the amplitude of the diurnal variation remains greater than in the normal eye. In glaucoma the apparatus for regulating tension is disturbed. In testing the effect of drugs or surgical procedures on the tension, these diurnal variations should not be left out of the reckoning.

HIRSCHMANN.

LEBER (584, On filtration in the eye and its rôle in the pathogenesis of glaucoma) defends the accuracy of his filtration manometer against the attacks of Troncoso. The values which Leber found for the physiologic filtration of the eye with injections into the anterior chamber must be nearly exact. Troncoso claims to have found that filtration is slower if an albuminoid fluid is used than when normal saline is employed, and that there is a

high percentage of albumen in the aqueous of glaucomatous eyes. Accordingly Troncoso concludes that glaucoma is due to the high percentage of albumen and the consequent difficulty of filtration. Leber answers this by showing that there is a marked increase of the albumen content in many intraocular inflammations associated with decrease of tension, such as panophthalmitis, irido-cyclitis, detachment, etc. Specimens of these diseases remind one of boiled white of egg. Leber has never seen anything similar in glaucoma. BERGER.

HEINE (585, Cyclodialysis, a new operation for glaucoma), basing on Fuchs's observation of choroidal detachment after iridectomy for glaucoma, has devised a new operation, cyclodialysis, to establish an artificial communication between the anterior chamber and the suprachoroidal space. A conjunctival flap is made, and a scleral section 1–2*mm* long made with a lance knife about 4–5*mm* back of the limbus. An ordinary stilet is then carried forward under the sclera until it reaches and perforates the ligamentum pectinatum. The instrument must now appear in the anterior chamber. It is then withdrawn slowly. The aqueous does not escape at once, but there is a gradual backward flow in the course of two or three days. If immediate flow is desired, the stilet is pushed toward the interior of the globe. The conjunctival wound is closed, and the operation is ended. Heine has tried this procedure on twenty eyes, all of which, however, were either quite blind or nearly so. The results were encouraging. The details are to appear later.

XVIII.—SYMPATHETIC OPHTHALMIA.

589. FUCHS, E. **Sympathetic inflammation, with remarks on serous traumatic iritis.** *v. Graefe's Arch.*, lxi., 2, p. 365.

590. HIRSCHBERG, J. **Operation of soft cataract (sympathetic), with notes on sympathetic ophthalmia.** *Centralbl. f. prakt. Aug.*, xxix., p. 97.

591. PIHL, A. **Cases of sympathetic ophthalmia, with histologic examinations.** *v. Graefe's Arch.*, lx., 3, p. 528.

FUCHS (589, Sympathetic inflammation, with remarks on serous traumatic iritis) examined thirty-five eyes which had been affected with sympathetic ophthalmia as proven by clinical and histologic observation. This affection occurs in about 13 % of all eye injuries, and is cured in 9 % of the cases. The histologic changes in the first affected eye in true sympathetic ophthalmia of the

second eye were characteristic, and consisted in small-cell infiltration, most marked in the choroid, less in the ciliary body, and least in the iris. This was missing in all but a single case of sympathetic irritation. Bacteria were invariably absent. The method of propagation to the sympathizing eye is still in doubt. The optico-ciliary paths have been definitely excluded by histologic investigations. Berlin's theory of metastasis by blood-vessels is the most probable hypothesis. The diagnosis in the living, injured eye is still very difficult, so that enucleation seems the most rational procedure in case of doubt in every ominous case.

HIRSCHBERG [590, Operation of soft cataract (sympathetic), with notes on sympathetic ophthalmia] describes a case of sympathetic ophthalmia, and calls attention to the special difficulties of cataract extraction under these circumstances. He gives a number of interesting descriptions of fundus changes in sympathetic ophthalmia.

PIHL (591, Cases of sympathetic ophthalmia, with histologic examinations) saw nine cases of sympathetic ophthalmia in 13,750 patients. There was one case of true papillitis, one of papillitis and chorio-retinitis, one of plastic chorio-retinitis and vitreous exudation, or uveitis posterior, two cases of mild serous iritis, and four of severe fibrinous irido-cyclitis. In regard to treatment, Pihl believes in the prompt enucleation of the originally affected eye even after outbreak of symptoms of sympathetic involvement of the other, even if there is still some vision. This prevents any more microbes and toxines from getting into the other eye. HORSTMANN.

Sections XIX.—XXII. Reviewed by DR. H. MEYER, Brandenburg.

XIX.—RETINA AND FUNCTIONAL DISTURBANCES.

592. ZIRM, E. **A case of persistent and extensive changes at both maculæ caused by direct sunlight.** *v. Graefe's Arch.*, lx., 3, 401.

593. POSSEK, R. **On senile changes at the macula in arteriosclerosis.** *Zeitsch. f. Augenh.*, xiii., p. 771.

594. TERWALP, A. **Opaque nerve fibres in the retina.** *In Diss.*, Giessen, 1905.

595. WEHRLI, E. **Microgyria and macrogyria of the brain and analogous arrest of development in the retina. Epithelial rosettes**

and the pathology of glioma of the retina. *v. Graefe's Arch.*, lx., 2, 302.

596. KRUECKMANN, E. **Pigmentation and proliferation of the retinal neuroglia.** *v. Graefe's Arch.*, lx., 2, 350.

597. WIRTH, J. **Two cases of glioma retinæ, with peculiarities.** *In. Diss.*, Berlin, 1905.

598. KASSIL, A. **Case of glioma of the retina.** *Westn. Ophth.*, 1905, No. 3.

599. HILBERT, R. **On subjective vision of colored spots in the field as a pathologic and physiologic phenomenon.** *Klin. Monatsbl.*, xliii., 1, p. 751.

600. HILBERT, R. **Violet vision.** *Centralbl. f. prakt. Augenh.*, xxix., p. 135.

601. HEINRICHSDORFF, P. **Disturbances in adaptation and visual field in hemeralopia.** *v. Graefe's Arch. f. Augenh.*, lx., 3, p. 405.

602. SANTOS, FERNANDEZ. **Total congenital detachment of the retina in two brothers.** ARCH. OF OPHTH., xxxiv., 4, 338.

603. FRIDENBERG, PERCY. **Fibrillary œdema of the retina following contusion.** ARCH. OF OPHTH., xxxiv., 4, p. 331.

604. OATMAN. **Cysts of the pars iridica retinæ, with report of a case.** ARCH. OF OPHTH., xxxiv., 3, p. 252.

605. SNELL, SIMEON. **The duration of life after the appearance of albuminuric retinitis.** *The Lancet*, July 15, 1905, p. 154.

ZIRM (592, Case of persistent and extensive changes at both maculæ caused by direct sunlight) observed permanent changes at the macula of both eyes in a boy who had, as he stated, gazed at the sun for several minutes. Vision was reduced in both, to counting fingers at 5*m*. The ophthalmoscope showed an elliptical ring-shaped area, with a finely stippled granular ground. The ring was grayish-black in color, and interrupted in certain places. Injections of cyanide of mercury (1. 5000) with acoin improved the vision slightly.

POSSEK (593, On senile changes at the macula in arteriosclerosis) reports a case of senile disease of the macula, with central scotoma and diminished vision, without any other ocular disease, in the right eye. In the left there were vascular changes, such as thickening of the walls and tortuosity of the small vessels of the macular region. The latter were discolored and prominent. The author thinks there was retinal disease on a basis of arteriosclerosis. The prominence of the macula is ascribed to a thickening of the retina, atheromatous changes in the choriocapillaris and neighboring vessels, and possible proliferation of a newly-formed layer of tissue between the retina and the choroid.

TERWALP (594, Opaque nerve fibres in the retina) has collated the cases of opaque nerve fibres from various clinics, particularly that in Giessen. The marked differences in percentage and occurrence are probably due to the fact that all cases are not examined ophthalmoscopically. Terwalp concludes that the occurrence of opaque nerve fibres does not depend on any congenital predisposition or developmental arrest, but is to be considered as an anomaly which is not necessarily present even at birth, but to which there is a certain predisposition at birth.

WEHRLI (595, Microgyria and macrogyria of the brain and analogous arrest of development in the retina. Epithelial rosettes and the pathology of glioma of the retina) observed a child with microgyria for a short time. Its twin was normal. The histologic examination showed an abnormally thin, hypoplastic retina, containing a tumor, composed of axis-cylinders and numerous longish cells not found in the normal retina. In the brain there were unusually small gyri and convolutions and cellular elements which were not definitely developed and also displaced. The developmental defect was due to congestion in the cervical vessels. The "micro retina" has small cellular elements. The rosettes found in the tumor were due to folding, while otherwise, typical rosettes after birth are due to pathologic processes. Some of the rosettes in glioma are identical with those of microphthalmus. The disturbance of development from which glioma arises consists in a dispersion of undifferentiated glia elements and ganglion cells. Hemorrhage or some other lesion is then necessary to stimulate reparative proliferation of the partially developed cells. As no blood extravasates were found in prematurely born children, the latter would be a prophylactic measure against glioma where the family history suggested danger of its occurrence. Wehrli suggests the name, "traumatic neuro-glioma."

KRUECKMANN (596, Pigmentation and proliferation of the retinal neuroglia) made histologic examinations with a new and as yet unpublished alsol-hæmatoxylin method, and came to the conclusion that the entire retinal neuroglia tissue is a single connected mass. In regard to the physiologic relation of the vessel walls to their limiting membranes of glia tissue, Krueckmann believes with Graeff that the vessels do not consist of a single

endothelial tube, but of two such, one within the other, and loosely connected. This division into a vessel wall and a perivascularis could rarely be seen in arteries. The opposed surfaces of the two tubes are smooth, and separated by a space, which in life is usually invisible. In globes with beginning panophthalmitis the vessel walls were found to be dissected up by leucocytes, and these spaces of his enlarged. The existence of endothelial cells on the inner surface of the retina, *i. e.*, that nearest the vitreous, has not been proven. There is no free pigment in the ectodermal elements of the retina, the coloring matter being invariably bound to the protoplasma of the glia cells or to the vascular apparatus. In chronic disease of the retina, pigment invasion takes place in the form of granules and larger masses infiltrating the pathologically increased protoplasm of the glia cells, which appears in the form of compact nodular masses. In this way the various stages from black to intense white are produced in the ophthalmoscopic picture.

WIRTH (597, Two cases of glioma retinæ, with peculiarities) studied two cases of glioma. In the first, the embryonic predisposition or rudiment was directly observed, as the glioma was seen within three days after birth. In the other case numbers of Wintersteiner's rosettes were seen, and the question of their pathogenesis is discussed. In one place the basal lamina was perforated, corroborating Michel's view, which had been declared to be impossible by Wintersteiner.

HILBERT (599, On subjective vision of colored spots in the field as a pathologic and physiologic phenomenon) reports a number of cases, fifteen in all, from the literature, in which there were subjective sensations of colored spots in the visual field. To these he adds two which he observed himself. The phenomenon may be physiologic or pathologic. In the first instance, the colored figures are geometrically regular and only temporary. The pathologic variety is of central origin. Nothing is known as to the organic basis.

HILBERT (600, Violet vision) found six cases in literature in which there was mention of violet vision in the form of spots or clouds. The diseases in which this symptom occurred were very varied, including intoxications, tabes, disseminate choroiditis, otitis media, and, in one case observed by Hilbert himself, influenza. The symptom is one of central origin.

HEINRICHSDORFF (601, Disturbances in adaptation and visual field in hemeralopia) determined the adaptation-time in hemeralopes by Piper's method, and found it invariably approximately normal in all chronic forms of this affection. In acute hemeralopia alone the time is doubled. Annular scotoma is not an occasional and accidental, but the invariable and typical disturbance of the visual field in true hemeralopia, which depends on an affection of the rods. It can be recognized in all light cases and in those severe ones in which the periphery is still preserved. Concentric contraction is a secondary complication of the severe cases.

FERNANDEZ (602, Total congenital detachment of the retina in two brothers) describes an opacity situated behind the pupil, which he observed in two brothers, aged three and a half years and one and a half months, which he diagnosed as congenital detachment of the retina, without giving any further details of the cases or of the clinical examination. ABELSDORFF.

FRIDENBERG (603, Fibrillary œdema of the retina following contusion) reports another case of the condition which he has previously described as fibrillary œdema of the retina following contusion of the globe. There was no diffuse œdema in the sense of Berlin's opacity, the changes being limited to the macula and appearing as glittering white radii arranged about the fovea in the form of a sunburst. The appearance suggested the aurora. The individual white lines were separated by spaces of apparently normal, bright red retina. The picture is construed as due to an œdema of the nerve fibres only, without transudation into the parenchyma of the retina, and an analogy is pointed out in the clinical manifestation and pathogenesis of this condition to opaque lens fibres. Fridenberg claims that there is also an analogous later change consisting in an eventual sclerosis of the nerve fibres, which he has also described, in which the fibres appear as exceedingly fine, intensely white striæ, like opaque nerve-fibres, but separated by areas of red retina. The picture is that of the whisker-like radiations from the disk in the rabbit. These conditions were invariably due to direct injury or to hemorrhage and subsequent scar, implicating the superficial layer of the retina. ABELSDORFF.

OATMANN (604, Cysts of the pars iridica retinæ, with report of a case) enucleated an eye which was blind from glaucoma.

The histologic examination revealed a serous cyst of the posterior surface of the iris, the anterior wall being formed by the atrophic iris, and a front layer of the pigment epithelium; the rear wall, by the posterior pigment and by a fibrous membrane formed by the organization of exudates. The contraction of this exudate seems to have caused traction and separation of the two layers of the pigment epithelium of the rigid iris, which led to cyst formation. ABELSDORFF.

XX.—OPTIC NERVE.

606. GROENOUW. **Intrascleral nerve loops.** *Klin. Monatsbl.*, xliii., 1, p. 637.

607. OGAWA, K. **Pigmentation of the optic nerve.** *Arch. f. Augenh.*, lii., 4, p. 437.

608. PATRY, A. **A clinical type characterized by optic neuritis and cranial deformity.** *Ann. d' ocul.*, cxxxiii., p. 249.

609. NAGEL, W. **Remarks on disturbances of macular color perception in retrobulbar neuritis.** *Klin. Monatsbl.*, xliii., 1, p. 742.

610. KIPP, C. **Two cases of anomalies of the vascular system of the optic papilla.** ARCH. OF OPHTH., xxxiv., 3, p. 256.

611. PONEK, R. **Cortical hemianopsia following injury.** *Zeitsch. f. Augenh.*, xiii., p. 794.

612. PANKSTAT. **Contribution to the study of bitemporal hemianopsia.** *Klin. Monatsbl.*, xliii., 1, p. 605.

613. SACHSALBER, A. **Case of occipital encephalocele with histologic examination of the optic nerve.** *Zeitsch. f. Augenh.*, xiii., p. 711.

614. SACHSALBER, A. **Disappearance of medullated nerve-fibres in the retina in neuritic atrophy due to brain tumor.** *Zeitsch. f. Augenh.*, xiii., p. 739.

615. FLATAU, G. **On the retrogression of choked disk in brain tumor.** *Muench. med. Wochensch.*, 1905, p. 646.

616. STOCK. **Case of post-papillary gumma of the optic nerve and gummatous choroiditis.** *Klin. Monatsbl.*, xliii., 1, p. 640.

617. SCHULTZ-ZEHDEN, P. **Contribution to the pathogenesis of unilateral choked disk.** *Klin. Monatsbl.*, xliii., 1, p. 153.

GROENOUW (606, Intrascleral nerve loops) examined a globe which it was claimed had been injured by an arrow. Under the microscope, loop formation was found in a posterior ciliary nerve. This surrounded a blood-vessel. Either the nerve had carried the vessel forward with it, or *vice versa*, depending on which structure developed the earlier. This question is not decided.

OGAWA (607, Pigmentation of the optic nerve) examined the optic nerve of animals, and corroborates the view that pigmentation of the trunk of the nerve is frequent. A number of

cases of physiologic pigmentation of the nerve in man have been described with ophthalmoscopic and histologic examination. Ogawa believes that there is a congenital rudiment of pigment spots, originating in hypertrophy of individual pigment cells or in scattered embryonal masses. The cases of pathologic pigmentation of the optic nerve, to which Ogawa adds one observed and examined histologically by himself, are due to a deposit of hæmosiderin.

NAGEL (609, Remarks on disturbances of macular color perception in retrobulbar neuritis) examined a patient with his apparatus, with beginning multiple sclerosis, relative color scotoma, and scotoma for white. There was diminished sensibility for green, which was confounded with gray. Red was recognized promptly. There is an analogy between the color perception of the pathologically color-blind fovea in this case, and the physiologically, partially color-blind zone of the retina. It appears quite evident that loss of perception of red and of green are not necessarily associated.

KIPP (610, Two cases of anomalies of the vascular system of the optic papilla) reports the case of a boy of fifteen, in whose right eye the inferior nasal branch of the central artery of the retina protruded from the disk *2mm* into the vitreous, then returned to the level of the disk, and ran off into the retina. In the left eye the central artery could not be seen on the disk, as the vessel came to the surface at the margin of the papilla, above and below. ABELSDORFF.

PONEK's (611, Cortical hemianopsia following injury) patient was struck with an axe on the back of the head. He returned to consciousness with double vision. A trephining operation was performed and a celluloid plate applied in place of the depressed bone-splinter which had been removed. After this procedure, complete blindness set in and lasted for eight weeks. The final result was homonymous hemianopsia and vision reduced to one-half in both eyes. Ponek reviews the various theories as to the representation of the macula in the cerebral cortex, and their bearing on the symptoms in this case.

PANKSTAT (612, Contribution to the study of bitemporal hemianopsia) reports three cases of bitemporal hemianopsia observed by himself. The first, which was kept under con-

tinuous observation until death took place, was due to a cyst on the floor of the third ventricle. The second case was probably due to a glioma ; the third, also to a tumor. Pankstat calls attention to the marked changes in vision (from counting of fingers to 1/10–2/10) and limits of the visual field, an observation which Oppenheimer has also made in brain syphilis. Improvement in vision was invariably accompanied by corresponding change in the color fields.

SACHSALBER (613, Case of occipital encephalocele with histologic examination of the optic nerve) examined the cadaver of a newly-born child with occipital encephalocele. Histologic examination showed the optic nerves to be unusually thin and dense. The nerve tissue was gone, having been replaced by a very delicate fibrous tissue. The ganglion cell layer was thinned out. This supports the view that centripetal paths leading to undeveloped centres remain undeveloped themselves. The basal ganglia, optic thalamus, etc., being undeveloped, no nerve fibres developed from the ganglion cells of the retina, and these structures themselves remained undifferentiated. The cells which did develop remained in a stage of incomplete finish. In other cases of anencephaly, the pupillary membrane and hyaloid artery were persistent. In this case there is no indication of either, but the vessels on the disk are unusually large, although not more numerous than normally. The central retinal artery is exceptionally narrow, and the cilio-retinal vessels show a compensatory development.

SACHSALBER (614, Disappearance of medullated nerve-fibres in the retina in neuritic atrophy) reports a case of brain tumor, in which amaurosis developed under the guise of bitemporal hemianopsia without visible fundus changes. The descending atrophy involved a sector of medullated nerve-fibres, which were present, so that eventually only striæ of proliferating interstitial tissue remained. In Wagenmann's case there was simple atrophy ; here there was a descending post-neuritic process. The atrophy was preceded by total loss of function of the nerve fibres, and in spite of the interruption of the conduction there was complaint of tormenting hallucinations of sight. Sachsalber explains this symptom as due to irritative conditions in the cortex, due to inevitable changes in intracranial pressure from the growth of the tumor, or possibly

to inflammatory changes in the optic nerve causing cortical irritation.

FLATAU (615, On the retrogression of choked disk in brain tumor) observed symptoms of cerebral compression which were attributed to meningitis, in the case of a girl of sixteen, convalescing from typhoid. The autopsy revealed a cerebellar tumor. Nine lumbar punctures were performed, producing temporary relief of choked disk on each occasion. Flatau accordingly recommends lumbar puncture as a means of retarding optic atrophy in suitable cases of brain tumor, and as a therapeutic agent in all other cases of choked disk.

STOCK (616, Case of post-papillary gumma of the optic nerve and gummous choroiditis) made a histologic examination of a gummous tumor. The case is particularly interesting on account of the rarity of the localization of specific granulation tumors in the nerve head. The author compares his case to those previously reported by Wagner and by Juler.

SCHULTZ-ZEHDEN (617, Contribution to the pathogenesis of unilateral choked disk) saw a patient with genuine, simple atrophy in the right eye, and choked disk in the left. The organic basis was found, on autopsy, to be a cholesteatoma, which had destroyed the right thalamus and pressed the trunk of the right optic nerve directly at the chiasm, producing pressure atrophy. The choked disk on the left side was due to increased intracranial pressure.

XXI.—INJURIES, FOREIGN BODIES, AND PARASITES.

618. VAN DUYZE. **Retrobulbar wound of the optic nerve by a pellet of lead.** *Riv. Ital. di Ottalm.*, No. 3, 1905.

619. SACHSALBER, A. **Gunshot wound of both optic nerves with protracted amaurosis and eventual partial recovery of peripheral vision.** *Zeitsch. f. Augenh.*, xiii., p. 727.

620. HORNSTEIN, F. **Injury of the eye with splinters of copper and brass.** *In. Diss.*, Tuebingen, 1905.

621. CRAMER, E. **On the healing of siderosis bulbi.** *Klin. Monatsbl.*, xliii., 1, p. 757.

622. GUILLERY. **Injury as a cause of a constitutional eye affection.** *Klin. Monatsbl.*, xliii., 1, p. 630.

623. SCIMEMI, E. **Extraction of subretinal cysticercus, and methods for determination of its location.** *Ann. di Ottalm.*, 3, 1905.

VAN DUYZE (618, Retrobulbar wound of the optic nerve by a

pellet of lead) reports a case which is interesting in that there was pallor of the temporal half of the nerve within five days after injury of the non-vascular portion of the optic nerve. Within eight days the entire disk had lost its rosy hue, and appeared white (Waller's atrophy). CIRINCIONE.

XXII.—OCULAR DISTURBANCES IN GENERAL DISEASE.

624. HOBHOUSE, E. **Renal retinitis in a child of six and a half years with interstitial nephritis.** *Ophthalmoscope*, April, 1905.

625. CHRONIS, D. **A case of irido-cyclitis during pertussis.** *Klin. Monatsbl.*, xliii., 1, p. 663.

626. FORTUNATI, A. **A morbid ocular phenomenon following influenza.** *Riv. Ital. di Ottalm.*, 4, 1905.

627. HEINE. **Ocular disturbances in cerebro-spinal meningitis.** *Klin. Wochensch.*, 1905, No. 25.

628. CONTRELLEMENT, V., and GALEZOWSKI, J. **Post-meningitic papillary stasis; recovery.** *Rec. d'opht.*, xxvii., p. 217.

629. MENETRIER and BLOCH. **Weber's syndrome caused by a tumor of the temporo-sphenoidal lobe.** *Soc. méd. de hôpit. de Paris*, 13 Jan., 1905.

630. GALEZOWSKI, J. **The development of amaurosis in tabes.** *Rec. d'opht.*, xxvii., p. 271.

631. FORTUNATI, A. **Histologic study of a case of quinine amaurosis.** *Riv. Ital. di Ottalm.*, No. 1, 1905.

632. OGG, T. **Case of acute plumbic encephalopathy followed by muscular paralysis and optic neuritis.** *Clin. Jour.*, Nov. 30, 1905.

633. REICHARDT, M. **The development of cerebral compression in tumor and other affections of the brain, with a new form of brain swelling.** *Deutsche Zeitsch. f. Nervenheilk.*, vol. xxviii.

HOBHOUSE (624, Renal retinitis in a child of six and a half years with interstitial nephritis) reports the case of a child, which at three had had scarlet fever followed by œdema of the feet and legs. In the last four months the child had suffered with headaches, and later with convulsions. The urine contained small quantities of albumen, and later of blood. It was of a port-wine color, but not cloudy. No casts were found. Characteristic changes then appeared in the fundus. After death the kidneys were found markedly affected, evidently as a result of the acute or subacute nephritis, with changes in the glomeruli.

DEVEREUX MARSHALL.

CHRONIS (625, A case of irido-cyclitis during pertussis) reports a case of irido-cyclitis with final loss of vision, caused by per-

tussis. This diagnosis was made probable by the exclusion of all other etiologic factors.

FORTUNATI (626, A morbid ocular phenomenon following influenza) reports three cases of cyclitic inflammation due to influenza. There were sharply-defined foci of congestion with episcleral hyperæmia, disturbance of pupillary reaction, and pain on pressure, and, above all, on attempts at accommodation.

CIRINCIONE.

HEINE (627, Ocular disturbances in cerebro-spinal meningitis) studied 100 cases of epidemic cerebro-spinal meningitis. There were ocular complications in twenty-seven. Affections of the optic tract consisted in simple neuritis, basilar amaurosis without ophthalmoscopic changes, and very rarely cortical disturbances. The interior of the globe may be affected by metastatic iritis, uveitis, or retinitis, resembling pseudo-glioma, and leading to the complete destruction of the eye. Ocular paralyses are common and almost always of basal origin. They may be complete, or affect the abducens alone. Nystagmus and pupillary disturbances are noted in a few cases. The work includes a complete review of the literature on this subject.

MENETRIER and BLOCH (629, Weber's syndrome caused by a tumor of the temporo-sphenoidal lobe) studied the case of a woman who developed right hemiplegia with left-sided complete oculomotor paralysis. The autopsy showed normal pedunculi cerebri, with a metastatic carcinoma in the temporo-sphenoidal lobe. The primary growth was situated in the breast. The brain tumor had compressed the capsula interna and sent out a spur-shaped process toward the cavernous sinus. Here the oculomotor nerve was flattened at its point of entrance by the pressure of the tumor.

FORTUNATI (631, Histological study of a case of quinine amaurosis) had occasion to make a histological examination of the retina in a case of malaria, which had ended fatally of quinine poisoning after eight days' blindness. The ganglion cell-layer of the retina, the fibres of the optic nerve, the walls and the contents of the vessels were all found to be normal. The tissue of the optic nerve was also found intact. CIRINCIONE.

OGG'S (632, Case of acute plumbic encephalopathy followed by muscular paralysis and optic neuritis) patient was a woman of

twenty-three, who had worked in a lead factory. During this time she suffered with anæmia, amenorrhœa, and attacks of colic with constipation. Suddenly there developed umbilical pains, headache, vomiting, vertigo, and delirium, with final loss of consciousness. The patient regained consciousness after six days, with a paralysis of both forearms and one leg, and became blind of optic atrophy following neuritis.

DEVEREUX MARSHALL.

REICHARDT (633, The development of cerebral compression in tumor and other affections of the brain, with a new form of brain swelling) concludes, from a study of nine typical cases, that the development of pressure symptoms in brain tumor depends principally on the relation of cranial capacity to brain weight. Pressure in small tumors is due to a pathologic reaction of the brain tissue to the new growth. General gliosis proliferation of the cerebral glia, or swelling of the brain, may develop. The site of the tumor is of importance, as intracerebral growths and those in the posterior half of the cranial cavity are, as a general thing, more apt to cause pressure than those outside the pia mater and those in the anterior half of the skull. The younger, more resistent, and healthier the brain is, the more easily it develops typical pressure symptoms and pressure psychoses. The only cases which speak against choked disk being a pathognomonic sign of pressure are those in which, despite the absence of choked disk, there is a marked disproportion between cranial capacity and brain weight, besides signs of chronic compression, especially affecting the bones of the cranial vault.

Obituary.

I.—**Dr. Frank Buller,** of Montreal, was born in 1844, and graduated in 1869 at Victoria College, Coburg. Then he spent two years on the continent of Europe, studying ophthalmology and otology under Helmholtz, von Graefe, and others. In the Franco-German war he served in a German military hospital, leaving for London in 1872, where he was two years house-surgeon at the Royal London Ophthalmic Hospital, working under Hutchinson, Critchett, Hulke, Lawson, and others. In 1876 he returned to Canada and settled in Montreal, practising his specialty until his death. He was the first Professor of Ophthalmology and Otology in McGill University. Physically strong, he was always ready for hard work; also a gifted, pleasant, industrious man; a good and erudite writer, his clinical publications being his best contributions. They extend over a period of thirty years, and number about seventy-five articles, according to Dr. J. Gardner, of Montreal, Canada, in *The Ophthalmoscope*, No. 1, January, 1906.

II.—**Dr. Swan M. Burnett,** of Washington, died suddenly at the age of fifty-eight, of œdema of the lungs. His friends, the Society of Ophthalmology and Otology of Washington, D. C., sent these ARCHIVES the announcement of his death, with resolutions printed in our January number, page 126. He was born in New Market, Tennessee, in 1847; graduated in Bellevue Medical College, New York, in 1870, and Professor of Ophthalmology in Georgetown University. Among his numerous publications are: *Color Vision*, 1884, and *Astigmatism*, 1887.

III.—**Dr. Louis de Wecker** died at the age of seventy-four. He was born in Frankfurt-on-Main in 1832, and studied at Würzburg. Later he was Desmarres's assistant in Paris, and studied with von Graefe in Berlin. In 1861 he graduated in Paris, and purchased from De Val the well-known clinic in the

Rue Visconti. A few years later he attended Léon Gambetta, removing one of his eyes. In 1870 he moved his clinic to the Rue du Cherche-Midi, which has been very successful. He did not leave it during the siege of Paris, and was nominated surgeon to the National Guard. His fame was wide. He was excessively active, well informed, not only in his specialty, but in science in general, a fertile writer in French, which in a foreigner is very rare; he was exceedingly ambitious. His practice was very extensive, his clientele being international. He was a profuse and substantial writer: *Traité des maladies des yeux*, 1863; *Thérapeutique oculaire*, 1878; *Traité des maladies du fond de l'œil*, 1870, and with Dr. Landolt the *Traité complet d'ophtalmologie*, 1882–1885. A zealous worker in medical societies; published any number of small articles on current ophthalmological questions of the day; and he was an excellent operator, especially for cataract. He invented several apparatus and instruments, one of his best being the *pinces-scisseaux* (forceps-scissors) for cutting tough membranes within the eye. He was quite a wanderer, staying two or three months in Cairo during the winter, and in summer living in his villa at the beautiful sea-bath Biarritz. Being very hospitable, he showed foreign *confrères* all his operative cases in the Rue du Cherche-Midi, operations which he and his very able assistant, Masselon, demonstrated with genuine kindness. His memory will last in the hearts of multitudes of his friends and pupils. In the history of ophthalmology he has a bright page.

IV.—**Dr. Med. Count John Magawly** died at Salzungen in Thueringen on August 29, 1904, and was buried at Leutsch, near Leipzig. He was born, July 7, 1831, at Hummingshile, near Riga, son of the Livonian Government-Councillor, Count Christopher Magawly, of an old noble Irish family. John studied medicine at old Dorpat, which he left in 1856 as Dr. Med. After his studies at Würzburg, Vienna, Prague, Paris, and Berlin, he settled, 1859, as ophthalmologist in St. Petersburg, where he lived from 1878 to 1904. He was appointed Ordinator in 1878, then Surgeon, and later Executive Surgeon of the Petersburg Ophthalmic Hospital. During the forty-one years this Institute developed gradually to one of the most renowned and largest in the world. He was efficiently seconded by his old friend **Dr. Robert Blessig**, the Executive Surgeon before he took

this position, and substantially aided by his able son-in-law, **Dr. Theodore von Schroeder,** who died too early. The writer (one year younger than Magawly) made his acquaintance in Albrecht von Graefe's clinic in Berlin and was with him in friendly intercourse. Professor von Graefe liked him and thought much of his talent and character. On my way to the International Medical Congress at Moscow, I looked him up in St. Petersburg. He invited me to stay at his residence, which was the upper story of the St. Petersburg Eye Hospital. The princely palace was the gift of the Empress Maria. Dr. Magawly and his family had there healthy, large, and sunny apartments. During a week my daughter and myself received the most exquisite hospitality from the Count, his daughter, and Dr. von Schroeder. The Countess was absent.

Naturally I took great interest in the hospital, admiring its cleanliness, the large rooms, corridors, stairs, and a garden. I saw the whole institution and its management, the desirable improvements which should and would be executed—for instance, a separate outhouse for children in the garden. Dr. von Schroeder and his assistants were busy with the Dispensary patients. There was order and despatch, without levity. I also witnessed several operations; they were well considered and neatly executed. This excellent institution was chiefly the work of Drs. Robert Blessig and Count Magawly.

The experience and research work in the Eye Hospital were published by Magawly, his co-operators, and assistants, in six separate small volumes under the title: "Communications from the Petersburg Eye Hospital." Numbers I. to VI., 1887–1899. These publications were very valuable—the results of the large clinical material in the Ambulance and the Hospital.*

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* In the *St. Petersburger Zeitung*, 19 (31) July, 1899, I found a sketch of the history of the St. Petersburg Eye Hospital from its foundation until 1898. This was an essential feature in the life of **Magawly,** and as he, with **Blessig,** was the foremost benefactor of the Eye Hospital, the development of this model Institute will interest many of our readers.

The first attempt to found an Eye Hospital in St. Petersburg was in 1806, with an Ambulance (Dispensary), and an inmate department of seventeen beds. In 1816 Dr. **Lerche** was appointed Executive Surgeon, and the Eye Hospital became a department of the general charities. There the Ophthalmic Institute was not thrifty. On March 6, 1824, Emperor Alexander I. succeeded in interesting Prince Alexander Nicolajewitch Golicyn. The Emperor sanctioned the foundation of an independent ophthalmic hospital, and promised a yearly con-

Ending this short sketch I may presume to comprise in one short sentence my judgment of himself and of all that knew him. It is: *Talent and efficiency were coupled in Magawly with, I may say, an angelic character whose chief traits were modesty and kindness.*

H. KNAPP.

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tribution of 3000 rbl. ($1500). Contributions of other people pledged 50–300 rbl. yearly, and others gave one sum of 5000 rbl. May 4, 1824, the St. Petersburg Ophthalmic Institute was inaugurated in a moderate house rented, with ten beds. Dr. **Lerche** remained Executive. In the first year there were 2968 out-patients and 210 inmates. In 1826 Emperor Nicolai I. consented to buy and equip a house for an eye hospital, and he gave 40,000 rbl. to defray the expense. In March, 1827, they bought a house for 132,000 rbl.; the completing of it cost 60,000 rbl. more. The Hospital now had forty beds, twenty-seven for males, thirteen for females. In 1834 there were 7000 out-patients and 350 inmates. In 1837 they bought a site for 40,000 rbl. and paid 250,000 rbl. for the building, and 40,000 rbl. was collected from residents of the city. The Institute had eighty beds. Prince Peter of Oldenburg was the protector.

In 1879 the Institute was amalgamated with the other charitable institutions of the Empress Maria Feodorovna. The Eye Hospital was now secured, and improvements were made. During the leadership of the able and popular Dr. R. Pp. **Blessig** (1803–1838), the number of patients increased considerably: from 7000 out-patients in 1863 to 14,500 in 1878. After the death of **Blessig,** his co-operator and friend Dr. **Magawly** was appointed Executive Surgeon, under whose leadership the Institute has grown quite unexpectedly. In 1878 there were 14,500 patients; in the year 1896 there were counted 24,016 out-patients, who made 55,673 visits. The number of inmates rose from 750 to 1300. Among the 51,593 cases there were 58,570 operations done, of which there were 7263 cataract extractions, and 8400 iridectomies. In the Dispensary 756,784 were treated from 1824 to 1896, in summa 756,884 patients, of whom 559.294 free of charge. Dr. **Magawly** with Dr. **Schroeder** and other younger and able men taught students of ophthalmology all the year, who later will go to the different governments of this enormous empire. The financial condition of the Eye Hospital is not brilliant, in spite of her seventy-five years. In 1898 its endowment fund yielded 1048 rbl. The city gives a yearly contribution of 1000 rbl.

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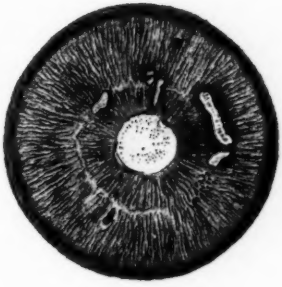

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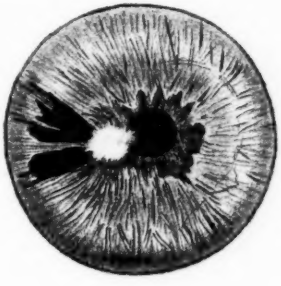

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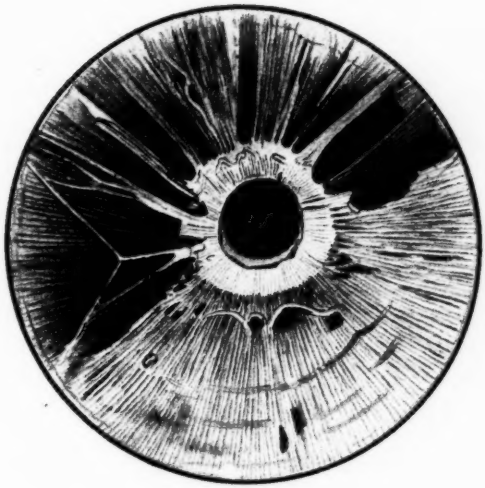

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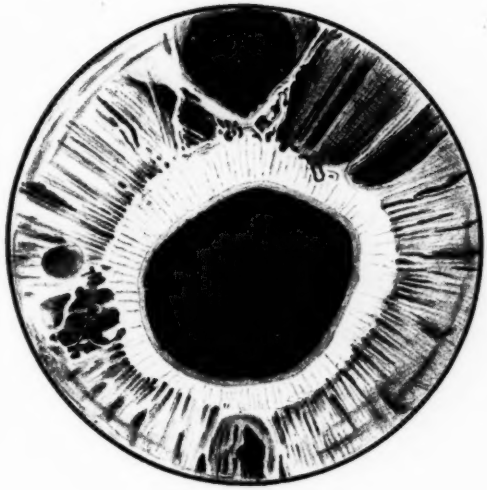

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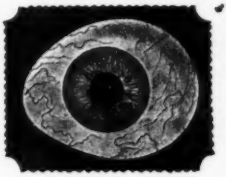

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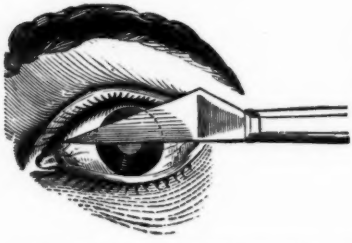

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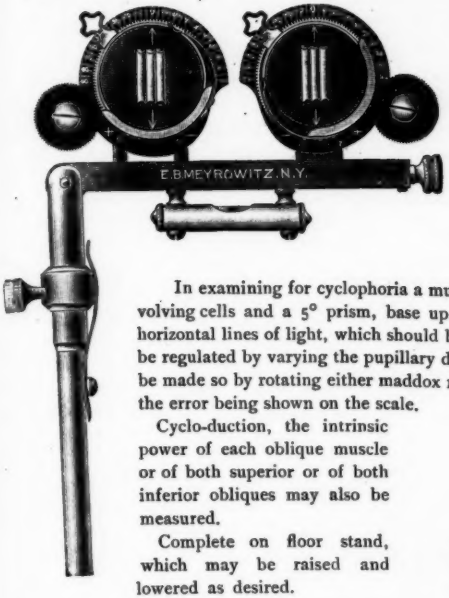

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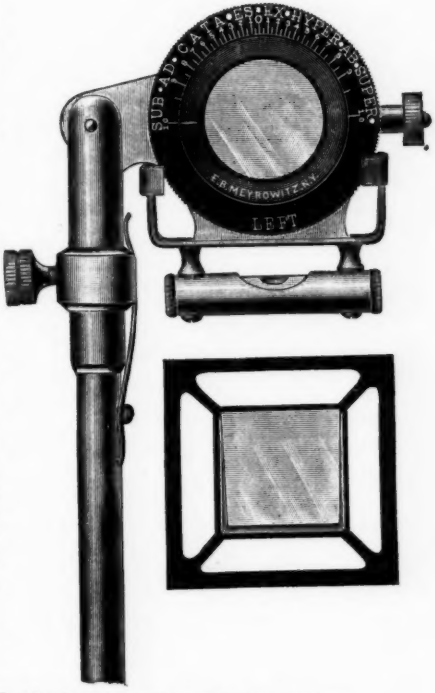

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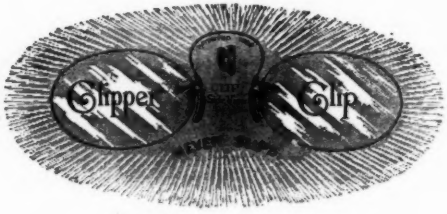

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